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# Headline Series

FOREIGN POLICY ASSOCIATION

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NUMBER 47 AUGUST 1944

# HEADLINE SERIES

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# HEADLINE SERIES

## No. 47

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# SKYWAYS OF TOMORROW

Burnet Hershey

## Introduction

Early in June, 1944, the Chairman of the Civil Aeronautics Board, Mr. L. Welch Pogue, stood before a large world map in Washington and pointed to 140,000 miles of international air routes which had been selected as desirable for post-war operation by United States air carriers. On this map, in the simple terms of geography and stripped of all doctrinaire rhetoric or diplomatic phrases, was the basic draft of what the United States proposed to do in the field of international commercial aviation after the war. To the already existing 80,000 route miles had been added an additional 60,000 miles of air lines extending virtually to every important country in the world.

To those who followed the pointer in the Chairman's hand as it traced the lines of this global network it was apparent that the United States Government was taking the next step in setting up an American air policy. However, the CAB draft did not indicate that such a plan had yet been agreed upon or even evolved. Though the map was an important advance, it was left weakened by the absence of several political realities.

For one thing, many of the proposed routes could not be operated in the absence of agreements with the countries to which they would be flown. Acquisition of foreign landing rights was a problem left on the doorstep of the State Department, to be

decided *when*, *as* and *if* the Government emerged with a policy. Then, too, while the present law provides for competitive, private operation on foreign routes, it also requires that the CAB pass on the individual merits of each case, the final decision being up to the President. The question arises also whether any decisions will be reached based on the existing aeronautical law or whether Congress will clarify matters with a new law.

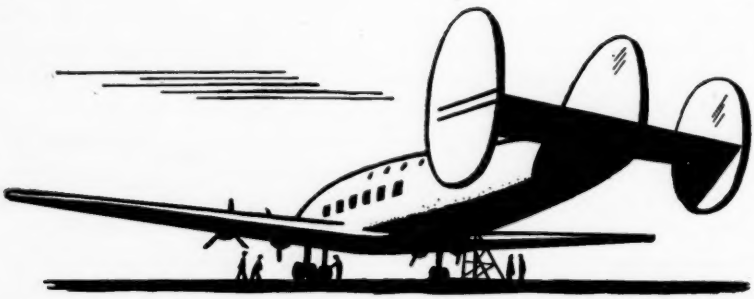
Questions of this nature, together with many other problems such as the technical possibilities of modern aviation, present and future ownership and operation of air routes, transfers of air bases and the future of aircraft as an instrument of power and international security—all these problems are coming out into the open for public examination. Behind the scenes of every Allied government a vast assembly job is going on with charts, maps, estimates and memoranda. Great Britain and the United States are in the forefront of this activity.

This brief, and necessarily incomplete, survey of some of the problems may give the reader a tiny notion of the task facing the policy makers and the negotiators. It is true that there is a disquieting delay in reaching solutions, but some feel that the delay has its advantages for all concerned. Very many of the almost innumerable facets of the aviation problem may resolve themselves better by practical trial and error than they could be solved, theoretically, over a green baize table. Since the plans should be made on a long-term basis, it would be better if they were entered into with greater deliberation and not hurriedly whipped up in the immediate post-war scramble. If our Government is not ready, there may be good reason for it.

On the other hand, American private aviation interests seem to be more than ready to take off on the great adventure of tomorrow's new world in the air. Technologically, the aviation business has made gargantuan strides. It should be remembered that the 80,000 miles of air routes being flown today do not take account of the many more thousands of miles all over the world which

American domestic air lines are operating under the Army Transport Command: Pan American Airways today is flying approximately 52,000 route miles, Panagra 9,000, and American Export Airlines 6,500. The remaining 12,500 miles of routes assigned to American flag carriers are temporarily not covered because of war conditions.

Just before this material went to press, the Government issued an astounding figure showing the extent of air cargo transportation today. Ten and a half million pounds of strategic materials worth $31,000,000 were carried by air to the United States, Britain, and Russia in the first quarter of 1944. This three-month figure is said to have been exceeded in the second quarter due principally to preparations for D-day. These operations under the Army and Navy Transport Services are now averaging several hundred overseas flights weekly, and are sketching the pattern of a world-wide development of airways that will become available for civilian air transport needs after the war.



## 1. Technical Possibilities of Modern Aviation

*The technical possibilities* of aviation can be summed up in four questions: How Fast? How High? How Far? How Big? And the same answer can be given to all of them: Nobody yet knows. There are many theories as to the limit of speed, the ease or difficulty of flying in interstellar space outside the earth's atmosphere, and the dream of reaching other planets; but like all purely hypothetical cases, still-unknown factors may be found which will put all present theorists into wastebaskets along with their notions.

*The technical probabilities* are a different question entirely, because the answers can be based on the known results obtained to date. A standard fighter-plane, diving, has already passed the speed of sound. The exact figure has not been released by military censorship, but it is known to reach 800 miles an hour! The pilot suffered no apparent damage from this terrific rate. So, two factors have been established: the ability of the human body successfully to withstand that speed, and the ability of a propeller-plane to attain it with the aid of gravity. What practical application may be made of this knowledge for future civilian use is up to further experimenters and inventors.

"Rocket planes" are so-called because they are helped to push through the air by sucking the atmosphere from in front into an

internal explosion chamber where it mixes with fuel, combusts, and is voided through a discharge nozzle in the rear. Although during the war, until the "robot" bombardment of England, development of this type of plane was directed largely toward gaining greater speed, some designers expect its post-war use to help reduce fuel consumption, the nightmare facing the aviation industry. The threatening possibility that there is not enough oil stored away in the earth to fuel all the transportation we hope to build and use is stimulating scientific search for entirely new sources of motive power, as well as for greater efficiency in our present internal-combustion engines.

However, it is improbable that the full results of present wartime experiments along these lines will come into common, public use for some years—possibly fifteen or twenty—after the close of the war. It will take a long time for careful tests and comparisons and final decision as to the best new devices suitable for mass-production. A study of newspaper headlines reveals that it is always several years from the report of a "revolutionary" mechanical discovery, until the cash customer can plank down his dollars and take the new gadget home some convenient payday afternoon.

### HELICOPTERS

That is certainly the case with the eagerly-awaited helicopters. Theoretically, these aerial windmills are the perfect counterpart to the old family sedan. They jog along at a comfortable pace, under 150 miles an hour; they can make a straight-up take-off, climb at any angle, fly forward or backward, hover over a given spot, and operate from an area less than fifty feet square. Equipped with floats, they can land or take off—straight up again—from water. Designers are even now working on models of helicopters which have demountable wings, wheels for land-surface travel, and seaworthy bodies for plunging across streams in amphibian adventures. In the international field the helicopter may be usefully employed as a craft for "feeder lines."

Practically, certain mechanical "bugs" must be eliminated. These include a number of structural difficulties in the "windmill" overhead propeller, a tendency to "yaw" like a sailboat out of rudder control, and a rather involved set of controls requiring a high degree of skill, coordination, and experience on the part of any would-be helicopter pilot. Six years of continual effort have increased the official record of sustained flight by only 29 minutes—from 1 hour, 21 minutes in 1938 to 1 hour, 50 minutes in late 1943.

Most of the men now in uniform will almost certainly live to witness the era of the air flivver. Commuting range can be expected to extend a hundred miles or more from the centers of the largest cities. Air-taxi lines are already being promoted, although they still lack everything for operation except the desire, and the lowest rates likely for some time after the war are three cents per mile—about three times rail commutation rates. Already a half dozen airlines have filed applications to use helicopters in short-flight air-mail and air-bus deliveries. Other applications for operating permits are also steadily being received at the Civil Aeronautics Board in Washington, and are filed away without comment to await action at some undetermined future date. Helicopters have yet to convince the CAB of their commercial practicability.

## PRACTICAL DIFFICULTIES IN THE "AIR AGE"

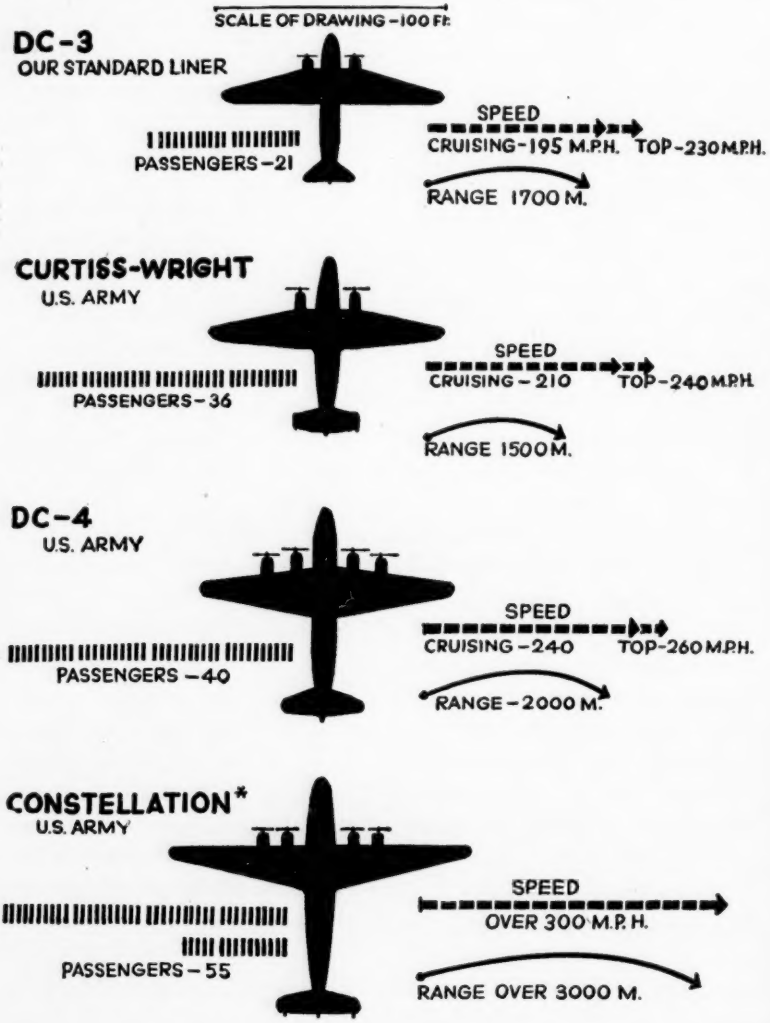
Prophets of the "Air Age" have been forecasting a vision of unlimited "progress and prosperity" for the aviation industry that would make the golden era of automobile profits look like a faltering dress rehearsal. That is simply false advertising without any reference to the facts, and every responsible person connected with aviation wants it corrected. As William Burden, Assistant Secretary of Commerce in charge of aviation, says, our aviation industry today is by far the largest single industry in the United States. It is five times as large as automobile manufacturing was

in the peacetime peak! Yet in 1939, aviation was only one-ninth of automobile production measured in dollars, and over seventy per cent of the 1939 production was in military aircraft. This figure from the last peacetime year is necessary as a gauge for any consideration of aviation in the coming post-war period. There is a temptation to compare aviation prospects of today with the automobile prospects of the year 1916 during the first World War. But the essential factors are utterly unlike.

On the simplest possible basis, the difference between servicing an automobile and servicing an aircraft must be noted. It takes a total ground crew of 125 men to keep a fighting aircraft going. Half of those men actually work on the home field of the craft. The other half are reserves, all are technicians, of one sort or another. Every single mechanical detail of every plane must be inspected, tested, and *proved* to be in working order before it can be permitted to take off. This is imperative for commercial as well as for military flying. The staggering cost of so much upkeep, rather than any technical handicaps, is what will put a damper on popular enthusiasm for widespread private use of planes. In time the servicing process will probably be simplified and the cost lessened, but not immediately.

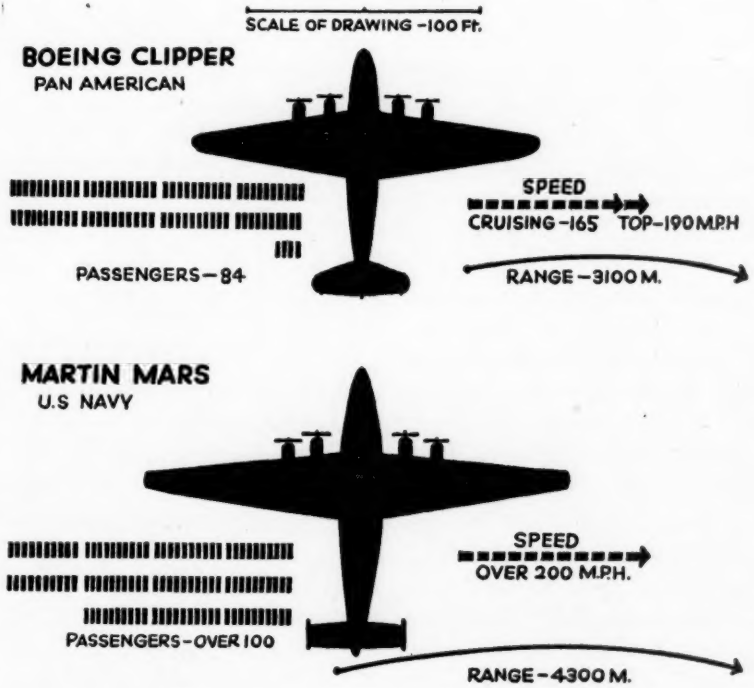
The actual land area required for commercial transport fields is an expensive factor which is sometimes overlooked. An adequate field occupies up to 2,000 acres, with concrete runways a mile-and-a-half long, and several millions of dollars' worth of hangars, machine shops, underground fuel storage, and so on. With the necessity for placing airports as close as possible to city centers, land values are high, running up to several thousand dollars an acre in most cases, and to scores of thousands in a few. In the summer of 1944, however, Assistant Secretary of Commerce Burden announced that the Civil Aeronautics Administration was planning to recommend to Congress the building of 3,000 new airports—the great majority of them to be small fields to be used largely for private flying.

# TYPICAL TRANSPORT PLANES TODAY




*DRAWING AND FIGURES ARE APPROXIMATE

Operation of the field with its trained personnel, its lighting system, radio and electronic guides and signals, facilities for housing—and hospitalizing—passengers is a costly affair. Whether it is maintained as a municipal convenience, and paid for by the taxes of many who never use it, or whether it is run on a commercial basis of charging actual cost to each plane serviced, there is still the fact that it must be financed. Many see this coming about, in spite of the obstacles mentioned above, through increased private flying which can bear its proportionate share of cost in the same way private motoring has supported the infinity of roadside filling stations that stretch across the land.



## WHAT WILL POST-WAR PLANES BE LIKE?

Wild prophecies have also been published about the size of forthcoming aircraft. Passenger planes to accommodate three and four hundred persons, along with baggage, express, mail, and fuel are said to be speeding off designers' drafting tables into the experimental stage. It is true that many designs have been drafted, and some experimental models made, for craft very much larger than anything that has yet taken wing, but it may be asked whether any of them will ever get into the air—except for some now unforeseen military purpose. The reason is that there is no practical purpose in operating such large planes. The whole value of aviation is speed. A traveller who wants to reach London, Paris, Cairo, Moscow, Chungking, or Manila quickly does not want to hang around three or more days until the next half-weekly plane takes off. Routine flights will take only 12 to 15 hours from New York to London. Planes leaving several times daily and carrying 40 to 60 passengers will probably be able to care for all available traffic, for some time to come, with much greater satisfaction to ticket-buyers than if giant craft made the trip more elegantly and less often. Larger craft would simply sacrifice convenience for the vanity of something "bigger." Unlike ocean-surface vessels, there is no greater safety through size in the air.

A great deal is being written about new types of flying craft, such as the giant Mars, and the "flying wing" which has no cabin but is flat and shaped like a skate fish, and distributes its storage for passengers and cargo inside the whole area of the craft. For military (including naval) purposes large planes like Mars undoubtedly have a use. It is more questionable whether they will fill any real need in ordinary commercial transport. Most freight goods can move slowly without any loss either to seller or buyer or consumer. A few luxury items, such as fine wild Italian strawberries gathered on the Appenines and rushed to Park Avenue within a day to meet a pot of Devonshire cream for some

gourmet's dessert, may be an occasional cargo that makes a headline on page one. But they are not the backbone of industry or commerce.

From present indications there will be little change in the appearance of post-war planes from those now in use. The transport planes used by the army are simply adaptations of the pre-war commercial models, and can be readapted with such improvements as the war has developed. Before the war the entire commercial air service of the United States—domestic and foreign—had less than five hundred planes actually in service. Since we are now turning out twelve times that many a month (of all types, of course), the air lines will have no difficulty getting a brand-new total flying stock.

Early in 1944, the Lockheed Constellation made its dramatic debut in the American skies with a record-breaking flight from Los Angeles to Washington in 6 hours, 58 minutes. In August, Pan American promised that as soon as military priorities and the course of the war permitted, it would put into service for long-distance flights several four-engine land planes twice as large as the present Clippers—these planes to be even larger than the Constellation, and technologically several jumps ahead of it.

### SAFETY DEVICES

Safety devices, which have developed under war pressure, will be included in the post-war improvements. Thousands of army and navy fliers are now *Radar* experts, thousands more know *telearchics*, the various phases of electronic controls, and a dozen other highly technical subjects. All of these tend toward much greater safety in flight under conditions which were once considered prohibitive.

*Radar*, which everyone now knows stands for Radio Detecting and Ranging, was in its final experimental stage at the beginning of the war. Urgent necessity proved a hothouse for bringing it

swiftly to practical use. Long a military secret, it is now known to thousands of pilots and crewmen as the magic eye that guides through storms, fog, finds an enemy target, and gives warning of an unseen mountain looming just ahead. *Telearchics*—the remote control by radio of unmanned mechanisms—may have some startling advertisement before the war ends. Like all other devices, this is simply one application of the new science of electronics, child of radio and parent of television. Robot planes, guided by telearchic control, and containing television cameras, can be sent over enemy positions and flash back a running picture. However, the usefulness of this discovery is still limited to so short a range as to make it of very little practical military value. How quickly the range can be extended we will have to wait on events to discover.

### AVIATION IS EARTH-BOUND

Prosaic as it may seem compared to the romance of flight, it still is a fact that aviation is earth-bound in a very real sense. So far as humans are concerned, it depends on safely leaving and safely returning to the ground. It is rather ironic that many of the techniques that will ensure take-offs and landings for post-war civilians, have been carefully worked out in the desire to preserve fighting pilots and fighting planes. The Government has two years and $26,000 worth of education invested in every pilot and, naturally, tries to protect the investment.

Before the war air routes were marked by visual signals; rotating lights at set intervals, and other markings for day and night. Radio contact was maintained by all planes with scheduled fields just behind and ahead, and in bad weather blind landings were sometimes possible by flying in on radio beams. The immediate post-war period will show a vast improvement. Much has already been made, even in civilian flying today. Infra-red rays have been used to combat fog and other hindrances to vision and are constantly being developed further.

Availability of emergency fields for forced landings, proximity of fuel stations, everything on which a pilot must depend for safety is bound up in knowledge of the terrain over which he may fly.

Little enough has been published about the change in map-making that complete air-coverage of the globe has brought about, but it is one of the most astounding human achievements in recorded history. As late as 1939 there were few comprehensive maps of the South American continent, one of the best being a set in possession of the German General Staff. This set had been made by various German colonists in South America, and had been coordinated through photographs taken by German commercial air lines and the German airship Graf Zeppelin.

Today, not only South America, but Africa, much of the Pacific Ocean with its islands, the Atlantic, and the Polar regions are photographed and, wherever possible, data obtained on the surface has been incorporated in the resulting chart. For the first time it will soon be possible for anyone to know the whole surface of the globe. The necessity of this for air pilots is obvious.

The function of aviation is to enable human beings to meet face to face, and see with their own eyes, and with the least expenditure of time out of what is, individually, a short life. Its possibilities are literally infinite. No one knows the limit where still-unknown conditions may halt a traverse through the sky. As Colonel Harold Harris, chief of the Plans Division of the United States Army Transport Command, says: "All our development so far is simply a window on the future."

## 2. Probable Routes of Commercial Transport

Mankind's earliest travel routes—whether for hunting, war, or trade—naturally followed paths of least resistance. Rivers always led to the easiest pass through mountainous country; animal trails guided surely to water holes in arid lands; for mariners, islands were charted where fresh water and meat and fruits would relieve the scurvy of early long sea voyaging. All these routes had one thing in common: landmarks along the way by which the traveller could determine whether he was heading in the right direction and along the proper path. From the very earliest times sea-borne transportation was subjected to taxes, more properly ransom and blackmail, levied by whatever nation happened at any one time to have the most advantageous ports, straits, and armed navy. Freedom of the seas was first proclaimed as an international "right" by the United States as the reason for the War of 1812 against Great Britain.

This is the most important historical precedent for judging the probable course of air routes in the immediate future, because air travel, even more than sea-borne, depends on relative freedom of passage for its development and effective operation. In addition, although there are no natural route-marks possible except "avigating" by reference to the position of the stars, aircraft must depend upon established depots for fuel, the effective profitable

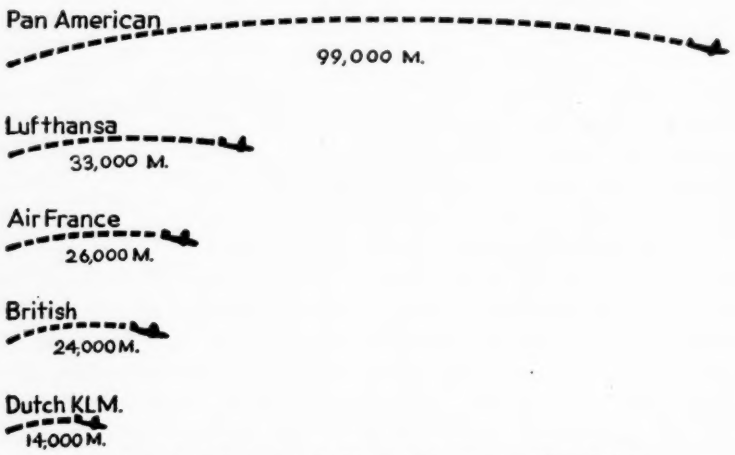
range of commercial craft between fuel-stops being roughly one thousand miles at maximum. It has been contended that with a post-war plane having an over-all range of 5,000 miles and a practical range, fully loaded, of 3,600 miles, matters of sovereignty and "stepping-stone" bases would almost disappear. A trip from New York to London would be a one-hop affair. To Scandinavia, only one stop would be required, and only six stops would be necessary for such a plane to go, fully loaded, around the equator.

### THE GREAT INTERNATIONAL AIR HIGHWAYS

During the war the air routes established by American and British civil companies under military direction cover both great oceans, and, since the Allied invasion of Europe, penetrate every continent. For all practical purposes these constitute the only great international routes now operating. In Africa the remains of that once flourishing French company, Air France, now known as Réseau Aérien Français (RAF!) has been strengthened by American help and is an important link in Allied air transport throughout the French African possessions and colonies. Also, the Belgian Sabena Line, the only successful privately owned major air line in pre-war Europe, orphaned by the fall of Belgium in 1940, refused to give up, and from new headquarters in the Belgian Congo has made a steady contribution to Allied efforts. Before the war the Dutch KLM had an excellent service to its possessions in the East Indies and the Caribbean. This line has maintained its identity and charter by operating between Miami, Florida and the only remnants of the Netherlands not overrun: Curaçao and Surinam. Respect must be paid to the representatives of these three nations for the courage and determination with which they have kept their air flags flying.

But the total air-hours and miles flown is not important in a general survey of wartime aviation as a guide to peacetime possibilities. That these companies will be restored to a respectable

## SCHEDULED ROUTES BEFORE THE WAR




*Approximate route miles operated by principal international airlines*

position in the world's air fleets goes without saying, but how soon that will occur must depend upon conditions in their homelands when they have been cleansed of invaders.

Even before the war broke out the world total of scheduled routes barely added up to the total flown regularly by United States Pan American's craft in 1941. At its top, in round numbers, the German Lufthansa had approximately 33,000 miles of air routes; Air France had 26,000; the British had 24,000; the Dutch KLM had 14,000. Pan American had 99,000! The superior knowledge of global air routes thus attained by American aviation has been increased during the war to an almost complete photographic coverage of most parts of the globe.

At the war's end, it has been estimated there will be nearly one million qualified fliers who have had experience in some areas

outside the continental United States. Probably there will be just about this same total in the rest of the world put together. Added to these must be several millions more who have been transported by air on long or short missions and are conditioned to air travel as the best means of going from place to place. This is the basis for some of the extravagant prophecies made about post-war aviation. But the reality may be much less glamorous.

In 1939 the United States in domestic and overseas service had a total of 265 commercial planes. Only a scant score of these were capable of transoceanic flights. Yet those few could have carried as many passengers *per year* to Europe as the average total of first-class steamship passengers. Unless travel should be increased ten or twelve fold there simply will not be passengers enough to pay for maintaining schedules more frequent than once a week—about the same schedules in fact as those formerly operated by luxury liners. The difference in capacity between a steamship serving, say, a thousand passengers, and a flying craft accommodating only a hundred is more than made up by the difference in time of passage: four days or ninety-six hours as against fifteen hours to Great Britain.

The chief worry of many leaders in the aviation transport industry is this same question of the available travelling public, and whether the very speed with which it can be taken to its destinations by air will not quickly exhaust the potential number of travellers who can afford both time and money to go abroad.

W. A. Patterson, President of United Air Lines, has estimated that even if one applies to trans-Atlantic air travel a faster rate of penetration than has occurred in the domestic field, the potential increase in total overseas travel (trans-Atlantic) will not exceed 13% per year. He also points out that 15 airplanes each carrying approximately 100 passengers and 5,000 pounds of mail and cargo could handle the entire North Atlantic business in the first peacetime year. Basing his figure on the requirements for the number of passengers travelling during the peak month of the year (Sep-

tember), Mr. Patterson further estimates that 43 such airplanes would be required to handle the business for 1948.

Although the history of transportation proves that every increase in speed and facility has tended to lower the cost per passenger-mile, because the number of patrons has vastly increased, it is also true that this has occurred only when there has been a minimum of artificial barriers to commerce and travel, such as high tariffs, onerous passport charges and red tape. All these factors must be taken into consideration in estimating the probable extent and direction of post-war air routes.

### THE AIR TIE TO THE UNITED KINGDOM

Travel, of course, follows trade, and the biggest trade of the United States has always been with Great Britain and Canada. These two English-speaking countries have, on the whole, practically the same standard of living as exists in the United States, which means that almost all foods grown or goods manufactured in any of them are familiar and useful in all. Moreover, these two nations are most likely to emerge at war's end less materially damaged than any other large nations, and with their commercial structures in better shape to resume peaceful trade. This seems certain to result in Great Britain and Canada being the first post-war objects of full-time aviation schedules from and to the United States.

As a by-product, this will probably cause the virtual abandonment of the Foynes Airport in Eire, formerly chief United States lines terminus in the British Isles. The Irish naturally will continue to use Foynes as their chief international port, but the great bulk of traffic will no longer pass through it as a junction point. Although attempts may be made to criticize this development in Eire as a political penalty for Ireland's neutrality in the war, it would occur sooner or later under any practical administration of commercial air traffic.

## CANADA—AIR CROSSROAD OF THE WEST AND NORTH

Friendly cooperation of the United States with Canada is of paramount importance in the development of United States aviation. Geographically, the Canadians are in a much better position to control world trade air-routes than is the United States. The short lines around the curve of the earth from North America to much of Asia and Northern Europe pass through the Arctic Circle. As has been pointed out by all the geographers, and demographers, most of the population and trade activity of the world centers north of the equator in a band that lies roughly between the equator and 60° N. That makes routes over the North Pole the shortest distance between the great areas of consumption and production, and such routes from the United States must cross through Canadian air.

Already this fact has been recognized by our military. In building the air defenses of Alaska, the assistance of Canada was necessary to provide air ports, ground facilities and transportation. The Alcan surface highway, which parallels Canada's Pacific coast, must be used to supply our Alaskan planes with fuel, our Alaskan garrisons with food, and in turn our outposts in Alaska are Canada's first line of Pacific defense. The same situation exists on the Atlantic seaboard, where the great-circle air routes from the United States to Britain, Scandinavia, East Europe must pass through Canadian air. In Newfoundland we have built, and are maintaining, as fine airport facilities as exist anywhere in the world. This was done as an essential act of warfare against our European enemies; without such facilities in that locality the American Atlantic seaboard might have suffered damaging enemy raids from Halifax to Washington.

Obviously, neither the United States nor Canada can afford to let this essential defense base fall into neglect. Nor would it be either fair or proper for the total continuing cost to be borne exclusively by either party. It is necessary for the defense of both

nations equally; and common sense opinion in both will certainly insist upon its maintenance as a joint effort.

Canada is destined to be an example and constant reminder to the United States that international co-operation is an essential basis for prosperity in the present air-age. No wisecracks about "globaloney" can laugh off the reality presented by a navigator's globe: the fact that Canada has shorter air-routes to the trading centers of the globe than has the United States—except as our planes can go through Canadian air. Furthermore, much of British Commonwealth air activity has been centered in Canada during the war. Canada has most of the basic materials that go into planes—coal and iron for steel production, magnesium, aluminum, vast forests for plywood. Likewise, Canada provided training facilities for pilots and crewmen of all the various Royal Air Force units of the Commonwealth. Many of the methods used later to train United States Army airmen were initiated by Canadians in 1940 to instruct their own youngsters and those from Britain, Australia, New Zealand, and South Africa. In aviation Canada has only one need that the United States must supply: the great body of manpower necessary to secure our mutual continent against invasion. Recognition of this fact will overcome such partisan prejudice and political chicanery—on both sides—as would bring mutual disaster.

Pre-war reciprocal flying relations between Canada and the United States were on a sound business basis. Four aviation companies did the actual pioneering; two of each nationality. On the east coast American planes of Colonial Airlines served a territory between Boston Bay and the Gulf of the St. Lawrence. Later followed the United States Northeast Airlines—a pretty small-time outfit back in the 1930's when it was started by the late Amelia Earhart, Paul Collins, and Sam Solomon. But for some time it was the only international air transport to Canada, and it jumped into full status of global operations in December 1941. With only twenty-four hours notice, Mr. Solomon—who had

been trying for four years to get approval for extension of his route to include Newfoundland—was ordered to establish a line to Northwest River. It took several frantic hours of telephoning between Northeast's operations office in Boston and its head office in Washington—and finally the Army Ferry Command had to be called in to disclose that the new terminus was way beyond Newfoundland. It was on the coast of Labrador, and even that was to be only a way station en route to Greenland, Iceland, North Ireland—and Great Britain itself.

However, the route has since been flown by at least three other American lines under direction of military authority, and whatever right Northeast acquired by its readiness to act in an emergency will have to be judged along with all the other problems when time comes to reassign all aerial franchises.

### AIR-STATIONS ALONG THE ROUTES—THE BASES

There has been a great deal of misunderstanding about the retention of air bases acquired from Great Britain or other nations in 1940 and subsequently. Debate about what will happen to the bases which the United States leased for 99 years is as futile as it is silly. Nobody but a fool would assume to say what defense lines this continent may need in 2039 A.D. It is only necessary to look at the crumbling "forts" along the Florida Keys, and even in some of our biggest harbors to realize how the necessities of defense can change in much less than a century. There is also a great deal of energy and breath wasted in discussing the peacetime disposition of the chain of airports built by Pan American Airways across Africa. This tremendous achievement was undertaken as a military-supply measure. It was part of American defense, and has been an important contribution to the defeat of our enemies. It could be charged off as having fulfilled the purpose for which it was planned. However, it is not necessary to weigh ethical pros and cons as to our rights in Africa. The big question about any peacetime air route is, and will continue to

be, whether or not a given route serves enough economic purpose to become self-sustaining. This is the great distinction between air routes and railway lines. Eighty years ago new country could not be opened up until a regularly scheduled transport line was ready to serve the incoming settlers. In those days it required the laying of permanent rails, acquisition of a right of way over property of some kind, and maintenance of the installations.

It is true that in maintaining an air line, surface transport must also be installed as an auxiliary to insure constant supplies of fuel and so on for the landing fields. But this can be done much more quickly today, and it can follow instead of preceding the opening of new territory by air. From all indications at present, in the writer's opinion, there is little probability that Central Africa will become so populous or so productive as to warrant more than an occasional—perhaps a weekly—scheduled flight from coast to coast. Local schedules, for use by incoming settlers, are not in the province of international air lines. They will be adequately filled by the now-operating Sabena, Air-France, and British lines.

Just what the British lines will be is as uncertain as any other part of the international air picture. Up to 1939 most of the Commonwealth and international air service was provided by Imperial Airways, Ltd., later called British Overseas Air Corporation, with the inclusion of various air lines in Great Britain and overseas. BOAC was a government monopoly, not as in the case of the German Lufthansa a weapon of aggrandizement, but simply a subsidized enterprise to extend commerce where a private corporation could not have afforded the loss both of capital and maintenance costs. This system, to some extent, made the various member nations of the Commonwealth dependent upon the home country for air communications with the rest of the world since the headquarters of the BOAC was London. Now, however, there are indications that the Dominions may go their several individual ways in the air, making treaties and contracts for reciprocal air services with the United States, Russia, Great Britain, the Netherlands, or fellow-Dominions as best suits the possibilities of trade.

Canada has several groups of investors preparing to launch all-Canadian air lines via the unsurpassed Arctic routes to destinations in Europe and Asia. Men now in the South African Air Corps are making their plans to continue flying for commercial purposes, linking their Dominion with Belgian and French Central Africa, and with direct routes to South America, the East Indies, and their fellow-Dominions in both Hemispheres. For such purpose, the ground installations made by United States lines during the war will undoubtedly be of value, if the cost of maintaining them should not prove too great. Upkeep is the big problem in aviation just as in other transport enterprises.

### THE MEDITERRANEAN—AIR LINES, LIFE LINES AND PIPE LINES

But there is one possibility in regard to air lines across Africa that must not be overlooked. That is the rising importance of the Middle East as the probable future crossroads of the world—the big market corner. There is nothing new in this situation. Since the very earliest historical times the caravan routes through what are now called Iran, Iraq, Trans-Jordan, Palestine, and Egypt have been tremendously profitable to commerce. Only during the nineteenth century, the industrial coal era, did these routes appear to be sinking into secondary place, and even then the Suez Canal was the chief artery which replaced camel-borne cargoes with shiploads of merchandise.

The present era of aviation, however, promises to restore this ancient area and raise it to a more commanding position than ever before. Oil is to this age what coal was to the last. Maintenance of a world-round system of communications and cargo carriage by air and sea demands immense quantities of fuel. Today's fuel, both for air and surface craft, is oil, and there are tremendous oil reserves in the Middle East. Political factors also enter into the rise of the Middle East; and these have firm roots in history. Some Americans appear to be surprised that the United States should suddenly engage in what has been called "imperialistic" projects in these regions. But the entry of the United

States into the political and economic life of the Arabian states is neither sudden nor "imperialistic."

Two things are necessary for even a superficial understanding of the American position in the Middle East, and why this will deeply affect American aviation. One is the background of our relations with the peoples of the region; the other is a study of an air map on the North Polar projection.

The map shows that the Eastern end of the Mediterranean is the focal meeting place between the vast populations of Asia and the great production centers of Europe; it is also the corner where friction between Russia and Britain existed for the past hundred years. The local peoples and governments were about equally in fear of both Britain and Russian dominance. Leaving out Levantine adventures of France and Italy, which will not likely affect the situation again for another generation at least after this war, the only neutral great power not suspected by either Britain or Russia has been the United States.

Americans have, during the last eighty years, built up a vast capital of confidence and good will toward the United States among the peoples of the Middle East. Today, this privileged position presents us with responsibilities, as well as promising profits.

Common-sense respect for our own security demands that we reserve as much as possible of our irreplaceable national oil resources for use in case of war from outside our borders. Common-sense business practice also requires that fuel should not be carried as cargo, but obtained at the destination for the return voyage—a fact even more essential to success in aviation than in maritime operation. The United States now has these oil supplies in the Middle East, which together with our political balance-of-power in that region may make imperative some regular, frequent air communication.

Iran is the historic battleground of Russian and British struggle for control in the Middle East. But Iran looks to the United States to hold the balance between the two, and act as Iran's staunch

friend in the post-war era. The importance of Iran in the air future depends upon the ability of American interests to cultivate their commercial opportunity there, and so gain the confidence of the Moslems throughout the Middle East. American technicians have installed a new railway line from ports on the Persian Gulf to the borders of the Russian Caucasus. This was done as a war measure to rush Lend-Lease supplies to the Soviet Armies. Nevertheless, it is bringing about a complete reorganization of Iranian economy and government administration. The Iranian Army and Air Force are being trained under United States officers; archaic agricultural methods are slowly yielding to the use of American farm machinery, soil study, and seed selection; Iranian finance—which Americans have frequently been asked to unravel—has been established on a sounder basis than ever before; trained public health officials—from the United States—are busily eradicating sources of contagion and infection which have existed since the dawn of history.

It is logical to expect that this potentially wealthy nation (in oil) of 15 million people, newly trained in American machinery and methods of living, will be kept in close contact with its economic tutors. Equally, it must be assumed that both Russia and Britain will include Iran in their schedules of aviation; suspicion of each other's motives, and of those of the United States, may eventually die out, but the next generation at least in all three nations will keep wary eyes on what is happening in the air over, and on the ground of, Iran.

### THE AIR ROUTES TO INDIA

Air routes to and from India will depend in part on how quickly and how thoroughly the 526 divergent units of that sub-continent manage to solve their exceedingly complex political and religious jealousies. Since they have never been solved in six thousand years of recorded "Indian" history, it seems rather presumptuous to prophesy that they may be within the span of the next generation.

However, it is very interesting to study the effect that aviation

has already had on this variegated population of more than 380 million peoples. The Indian Air Corps is a voluntary body with a Civil Aviation auxiliary, to either of which admission can be had only on taking oath that caste regulations and tabus and partisan politics will be ignored, and pilots and technicians are trained without regard to anything except their individual aptitude for mechanical education. So far, the numbers enrolled are less than a hundred thousand. But the influence of this pioneer group may prove to be greater than its proportion to the whole. Out of a hundred-odd different "Indian" languages, likewise, only one is spoken in the classroom, at the airports, or in the pilot's compartment. Generally, indeed, English is used as a purely practical matter for explaining mechanical operations which are difficult or impossible to translate. So aviation may prove the unifying force which can override the age-old divisions that afflict India.

### AEROPOLITICS AND THE RACES

But it may be another generation or two before India figures prominently among the principal air routes. That will be because, at present, the laws of many nations including the United States, forbid the entry of Hindus—or other Indians. As information gradually seeps down through economic castes to the least-educated, this situation will become increasingly a matter for resentment, and even tourists may not find India a pleasant place to spend an air-borne week end.

All this may seem more political, or historical, than one expects to find in a survey of future air routes. The fact is, and it becomes clearer the more the subject is studied, that air routes *are* political, as well as commercial, and military. These three potentialities are indivisible. They exist whenever a plane leaves one country to land in another. Barring hostile action a plane can go anywhere—unlike ships and land craft. To find where planes *may* go in considerable numbers all these factors must be taken into account, including the basic human factor of antipathy or sympathy be-

tween any two differently-colored or religiously disposed groups of human beings.

The question of race-prejudice will be a factor in the speed with which aviation attains its logical position as a super-national means of constant swift contact for all mankind. If there were no such prejudice, the normal course of air-routes would certainly be directed toward China and India, where nearly one-half the human race is eager to share in the profits and comforts of industrial mass-production.

## CHINA NATIONAL AVIATION CORPORATION

China already has a trained nucleus for commercial aviation, and by the end of the war with Japan, doubtless will have the beginnings of a whole aviation industry from raw materials to plane factories, fuel plants and airports. The China National Aviation Corporation, 49 per cent of which is owned by United States Pan American, has vastly expanded since 1941. This company, called by the Chinese themselves "The Middle-Kingdom Space Machine Family," was a lifeline to China's embattled millions from the time of the Japanese invasion in 1937, and even more completely after the fall of Burma. In 1943, when the Trans-African Ferry service, pioneered by Pan American under United States military direction, was absorbed by the Air Transport Command, those men of Pan American who did not accept army commissions were sent to repeat over the Himalayas and the trackless Chinese hills what they had achieved over African jungle and desert.

The wartime service of these Americans in the CNAC will pay tremendous dividends to the United States in Chinese goodwill, although they have been there purely as civilian auxiliaries to the carrying out of our military plans. But courage commands respect, and the CNAC planes fly unarmored and without guns in constant danger of attack from Japanese raiders. These frail ships have hauled everything from new-born babies to tanks and cannon over the toughest flying routes that exist anywhere. Along

with General Claire Chennault's pilots of the old American Volunteer Group, the CNAC has made the first accurate maps ever charted of all China. How the Chinese regard the AVG and the Americans of the CNAC was summed up in the "remark" that was inserted on General Chennault's honorable discharge as Commander of the AVG. The honorary Commander, Mme. Chiang Kai-shek, wrote on the back of that document: "He achieved the impossible." History has no parallel citation.

The majority of the CNAC is Chinese. Organized in 1929 by the Nanking government, it was one evidence of Chinese determination to occupy the position in a modern world to which China's size, her great culture, and her long record of honorable commerce with other nations entitle her. As an industrial nation, China was starting from scratch. Twenty years of civil war, on top of four centuries of backward, isolationist Manchu rule, had exhausted most of China's reserve capital and had produced little beyond a new spirit of enterprise in the youth. Another difficulty was that in spite of her great territory, nearly one and a half times larger than the United States', and the biggest population on earth —about one-quarter of all humanity—there was no transportation! The bulk of the population was jammed in the highly productive bottom-lands along the three river systems of the Huang-Ho, the Yangtze, and the Si-Kiang. All of the wide hill areas to the west and north, which hold most of China's vast mineral wealth, were relatively unpopulated, and completely unpoliced. No railroads penetrated this district; no highways existed for vehicles faster than an ox-cart. Methods of agriculture and ways of life had hardly changed from those of five thousand years ago. Suddenly this area became of the utmost importance to the invaded Chinese, when, pushed back from the coastal settlements by the Japs, millions of refugees had to find a resting place.

From 1937 on this process of resettlement has continued, largely in the two provinces of Yunnan and Sinkiang. Yunnan borders Burma; Sinkiang, Soviet Siberia. As Wendell Willkie reported

in *One World*, Sinkiang is twice as big as France and, before the great immigration, had less than 5,000,000 inhabitants although there is considerable fertile land. Yunnan, adjoining on the south, likewise is a wide rich land. Together their territory is almost four times as great as that of France, but because of the lack of transportation, until the present they have supported less than one-third as much population. In the foothills of the Himalayas, separated by the towering heights of Thibet, the rivers are broken by falls and are too swift for navigation.

### AVIATION AND RESETTLEMENT

Aviation has made the area available. Lacking navigable streams, with the land too mountainous for quick construction of surface roads across the innumerable canyons and up precipitous cliffs, the habitable valleys have been linked together by air. CNAC's airport at Kunming is the entry port to China from the outside world. Plentiful waterpower is being developed—with equipment flown in—and at Kunming there is already the nucleus of heavy industry; a tin smelter, high-test steel mills, textile factories, and an arsenal, all operated by hydroelectric power. Here for the first time in several centuries the Chinese is his own master on his own land, developing it for his own benefit. In some ways this area resembles the district around Chicago in the period after our Civil War. The resemblance will increase when China can turn all its energies loose on providing its half billion people with the modern conveniences of industry they are learning to desire.

For aviation this new frontier may be all-decisive. Under a free government of their own selection the 450,000,000 citizens of China will be the world's greatest undeveloped market. They are at present very sympathetic to Americans from the United States partly because of their contacts through CNAC and the AVG. Where there has been close association, the relations have been excellent, without race-consciousness, and with mutual respect and genuine liking between individuals of equal skills

and levels of intelligence. Access to China by air presents fewer problems of routes through foreign sovereignties than any other great market open to the United States since only the Pacific lies between us.

## GOOD NEIGHBOR ROUTES

In South America, since 1940, a large and chiefly nationalistic boom has occurred in aviation. Prior to the war—that is, from 1920 to 1939—many South American routes were owned by German companies, subsidiaries of the *Lufthansa*; or by the Italian *Ala Littoria.* These were taken over, in a dramatic series of diplomatic and commercial *coups* in 1941 by companies organized in the various Latin-American Republics. Nearly all of the nations south of the Rio Grande now have laws restricting operation of foreign-owned air lines in the national air. This has not been a barrier to Pan American and its affiliate Pan American-Grace, since the local operations of those companies have been carefully left in the hands of local representatives, with the United States carriers simply advising, supervising, and coordinating schedules into an efficient system.

How long that arrangement will continue is uncertain. It seems safe to assume that in Colombia, Venezuela, Brazil, and Uruguay the present friendly and mutually advantageous agreements will remain in force and even be extended as industrial growth increases in these regions. Mexico has been most cooperative in its air policy, as have Cuba and most of the Central American nations. But in some others, notably Argentina and Bolivia, the air unity which existed during 1942-1943 seems to be disappearing along with the threat of possible danger from Axis invasion.

Extensive plans are blueprinted for routes from the United States to all Latin-American countries. Early in August 1944, Pan American announced a program of low-cost, high-speed, mass air transportation between the United States and Latin

America. It promised rates as low as 3½ cents a mile compared to the present average of 8¾ cents. Cargo and air-express rates in the new Pan American schedules would be cut from an average of 80 cents a ton-mile to 25¼ cents. These plans would increase Pan American's passenger-mile capacity in Latin America more than 100 times and enable it to transport more than five times as many passengers as travelled between the United States and Latin America by both air and sea in the best pre-war year. In the time and fare schedule proposed by Pan American, a trip from New York to Buenos Aires would cost $190.50 (as compared with the present fare of $561.35) and could be made in about 21¼ hours. It is certain that other American air lines will seek, if they have not already done so, to compete with Pan American in offering low-cost air travel.

What was almost a Pan American monopoly could turn into a free-for-all scramble if the CAB granted even a part of the requests for routes now piled up in Washington. Competition will have to be met, too, from Canada which can reach the Southern continent without need of permission from United States authorities by flying over undisputed ocean. British lines will expect to have a fair share of the European traffic; and what remains of Dutch KLM already has footholds in Dutch Curaçao, Surinam, and Venezuela. Quite probably the Australia-New Zealand air interests will make a bid for trans-Pacific routes via British islands to the west coast of South America. A representative New Zealander is already in the Caribbean area—Lowell Yerex, the go-getting president of TACA, chief independent (upstart, the more conservative air lines call it) air-carrier in Middle America. A majority of the TACA stock is held by United States investors.

In spite of war, lack of planes, and nearly every other handicap, Yerex had built his company—*Transportes Aéreos Centro Americanos*—from one broken-down aircraft to one of the world's largest carriers of commercial freight by 1943. Then he besieged

the CAB for a United States charter and landing rights for his BWIA (British West Indies Airways), which he obtained over strenuous protest from all other interested parties—chiefly Pan American and American Airlines.

One very active competitor with Yerex' TACA and BWIA is likely to be American Airlines, now merged with American Export Airlines. American, in 1943, built a "luxury" airport in Latin America at Monterrey, Mexico, as a permanent junction for its lines from East and West in the United States on down to Mexico City. While the resulting traffic was largely in competition with the Mexican government's nationalized air line, and was chiefly for tourist and business travel, it did alleviate the terrific strain on the main Pan American routes from the United States through Mexico to the Canal Zone and farther South, which were loaded with priority war traffic.

The competition between these two extends as far south as Brazil, where TACA's *Aérovias Brasil* is well established, and is seeking the right to fly into the United States under the Brazilian flag. American Airlines has done considerable promotion work also in Brazil, and is supplying the present personnel for the former German "Condor" air-line company which was taken over and reorganized as a private Bazilian company when the Nazi plan of aviation control in South America was blasted.

### BRAZIL

Brazil, in a good many ways, differs from the rest of Latin America. It stands apart. For one reason, its language is Portuguese, not Spanish like nearly all the rest of the Continent. Its cultural background, also, has less colonial and more national character than any of the others, except perhaps Argentina. This is because Brazil for twenty years was the seat of government of Portugal, with the King, the Queen, and the whole court residing at Rio de Janeiro. When Their Majesties went back to Europe, Brazil had ceased to be a colony and had become an

Empire in its own right, with one son of the Portuguese monarch left to reign and rule. Brazil did not have to fight for its independence from the motherland; nor did the Brazilians have to do much more than hint to have the Empire replaced by a republic. The result has been a national unity to a rare degree. There is no racial cleavage, in spite of as mixed a population as can be found anywhere. Religiously there is an extraordinary merger of devout European Catholicism, some African animism brought in by slaves, all colored by bits of Indian superstition and blended into a vigorously growing civilization.

Brazil has done wonders during the war. The health of the population, dragged down by centuries of inherited European ills and by malaria and fevers from the mosquitoes of Brazil's jungles, is being seriously taken in hand by a nation-wide government campaign. Tremendous industrial and economic projects are being undertaken, with many of them well along toward actual mass-production. Agriculture is being studied, and information about experimental growths is being exchanged, not to compete with products of which there is already a world surplus in normal times, but to develop new materials.

Larger in extent than any other nation in either North or South America, Brazil has less than 50,000,000 people in a territory that could easily support at least four or five times that number with lots of room to spare. Brazil has historically been faced with two problems: how to protect the health of settlers in the hot, damp valley of the Amazon which covers over half its area; and how to provide transportation through a maze of rivers, swamps, and tropic vegetation. Only aviation has been able to provide the answer to transportation with the speed and efficiency required by modern demands; and the results obtained with air transport, under the necessity of war, are almost incredible. There are maps now, taken from the air and checked in many instances by ground crews of practically all Brazil. Surface roadways have been built for thousands of miles, under guidance from

the air, and on a practical purposeful plan that would have delighted that master roadbuilder Julius Caesar. Machinery, and much technical advice for all this, has come from the United States under Lend-Lease arrangement. But the work has been done by the Brazilian government, or the local authorities of the various Brazilian states. A comprehensive system of airports and aircraft signals has been laid out and is under construction. With the help and full co-operation of that able pioneer, Pan American Airways, Brazil has its own domestic lines, and facilities for foreign craft. All these installations will put Brazil in the forefront of post-war American aviation. They will also be beneficial to all the other American nations. Brazil has much to sell, and much need to buy. Aviation is the most effective transport for buyers and sellers in Brazil. The result will be routes into Brazil from all parts of the hemisphere within the next ten years at most. If the fare from New York to Rio is to be reduced to $175 and the time cut to 20 hours, that prospect seems even nearer.

### EUROPA

The Second World War, through its tremendous dislocation of industry and its actual destruction of material resources, will probably retard aviation in Europe for twenty-five years or more. France will, of course, make strenuous efforts to rebuild its air line for communication with French Africa, and whatever territories are restored in Asia.

Switzerland, which promises to come out of the war with its homeland undamaged, and is in a strategic geographical location for a Central European air terminus, may become a real factor in European civil air transport. It is dependent on other countries, of course, both for planes and for fuel since it has no facilities now for building, and no oil wells. Still, Italy once managed to create an international air line without good supplies of any raw materials.

If Russia exercises control in the Balkans, as seems most

probable, whatever aviation exists in these industrially backward regions will inevitably be linked to Russian aviation, with planes built in Russian factories, and schedules timed to coincide with routes to and from the Soviet Union.

Spain may attempt to establish some routes, particularly to Spanish America, but lack of raw materials, industrial plants, and sources of fuel will tend to make Spanish aviation a small factor in the international air.

Portugal, as is seen in the following chapter, has an excellent bargaining position for making advantageous contracts for air-service, without the responsibilities of building an aviation industry of its own.

Holland, as has been mentioned, still has the organization for its fine air line KLM. Also, it must maintain contact with its Pacific and Caribbean settlements, which provide much of the world's oil and rubber. The Dutch cannot be regarded as a minor item in world aviation; their planes were equal to the pre-war best, as were their pilots and their record of service.

Belgium might conceivably center its air-efforts in Africa, maintaining only communications between the Congo and the homeland, and depending on some mutual Belgian-Dutch air merger for its local and European service. That would be practical, since neither Holland nor Belgium alone are wide enough to warrant purely domestic air lines.

Poland, after the war, will have great difficulty in trying to create any kind of transport service on an intenational scale. The loss of two-fifths of its territory to Russia, even though compensated by annexation of East Prussia, will entail such confusion among the resettled populations that a generation may go by before the Poles can find energy enough to do more than clean up the debris left behind by the German slaughter and demolition squads. Rebuilding of factories and houses for domestic use alone may take the Poles twenty to thirty years, and the plunder of natural resources, such as their forests, cannot be recovered in centuries.

It must be considered, too, that in the whole of occupied Europe the energies with which to meet the post-war chaos are going to be far less than was the case in 1919. Not only has the present war dragged on longer than the First War of Germany against the World, but German plans for decimating its conquered victims have been more precise and more ruthlessly imposed. The reaction, after Germany's defeat, may be a dreadful lethargy covering all Europe from Gibraltar to the Dniester. The immediate future of aviation will not depend upon, or center in, continental Europe.

### THE BEAR THAT FLIES LIKE A BIRD

Russia, from every point of view, has the strongest air position in the world. It is impossible to exaggerate the influence which Russia could, if it desired, have on international aviation. From the outset the Soviets have pursued a closed-air policy. Until 1944 with few exceptions only planes piloted by Russians were permitted to fly through Russian air. Geographically, there was no need for Russia to change this policy. Without permitting foreign flights through Soviet air territory, Russia can still do business by air with China, Japan, Afghanistan, India, Iran, Turkey, Rumania, Bulgaria, Poland, Norway, Finland, Sweden, Denmark, Germany, Canada, and the United States. In each case only a Russian border and the border of the country with which the business is being transacted need be crossed. Added to this is the fact that Russia comprises the greatest single land mass under one government—one-sixth of all the land on earth, and that it has every material within its own borders to make, fuel, and service aircraft.

There is an indication that Russia's pre-war policy of excluding foreign aircraft may be changed some time in the near post-war future. From the Russian point of view this is not only logical, but good hard governmental and business common sense. It has less to do with political ideology than with commercial

judgment. True, Russia will need a few articles from the outside world; still it has the materials, and has gained the skills, with which it can produce everything needed to raise the standard of living to as high a point as anywhere else on the globe. Whether the Soviet Union will accomplish this is neither here nor there for the present purpose. It has the means to do so, without calling in outside help. But it must solve several purely domestic problems before it reaches any such desired end.

The first Russian problem is the necessity for uniting all the various peoples in the Union into a nation. Great—almost miraculous—progress in this direction was made by the rigorous plans of education imposed by Stalin from 1929 to 1940; and later under the nationalistic resentment against German invasion. The satisfaction which will follow Russia's victorious united effort will, doubtless, also help weld the country into a unit. But there will remain the actual physical size of the Union which must be overcome in some such manner as has been done in the United States or Canada. Aviation is the only quick way of knitting this far-flung empire together. It would take generations —if not centuries—to build railroads, or even motor roads, which could reach into all the hamlets, and tented nomad camps that stretch from the Arctic Ocean to the Japan Sea. Domestic air lines alone, in Russia, might conceivably equal in total mileage all the other air lines put together over land routes in the world. Until a certain minimum of these domestic carriers have been soundly established, with all the necessary ports, supply lines, fuel storages, and other installations, Russia is not likely to look beyond its own borders.

Yet, the Soviet Government realistically must be aware that without Russian co-operation world aviation cannot develop along natural geographical lines. The mass of Soviet territory lies squarely athwart global air routes. Any glance at the world globe shows this to be a fact, and the Russians have repeatedly indicated that they are aware of their advantage. Several times

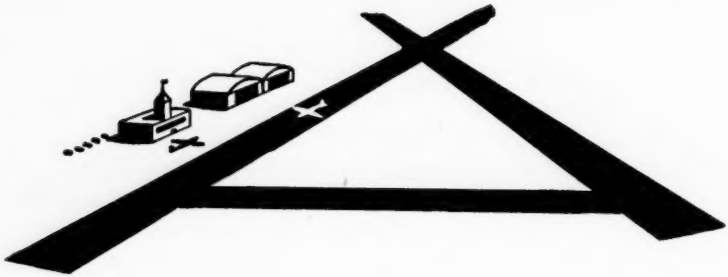
from 1925 to 1939 the Kremlin tried to bring about some general agreement on international aviation routes and practices. That these suggestions generally were openly to Soviet advantage does not destroy their sincerity.

The Russian position in this matter was candidly stated by General Baranov, head of the Red Air Force, in 1927:

> "In the countries of vast open spaces and poorly developed communications systems, such as Siberia, Canada, Central Asia and Africa, air communication is not only the most desirable, but often the only kind possible. Russia with her vast undeveloped territories has, therefore, the greatest interest in pushing the development of a network of new Soviet airlines. By means of their own airlines the capitalist nations are reinforcing their hold on colonial and semi-colonial countries. It is one of the most powerful methods in the struggle for new markets. In order to exclude all outside influences, Russia will insist on the most rigid interpretation of the doctrine of national sovereignty. We do not hide our intention to profit by our favored geographical situation. The political and geographical position of the U.S.S.R. which is located at the crossroads of the world's major airlines, makes mandatory an intense development of our civil aviation, which holds promise of great benefits for us in the future. We recognize, moreover, all the danger present in letting the world's airlines run through our skies."

On August 14, 1944 Secretary Hull announced that a preliminary understanding on post-war air had been reached with Moscow; but it was emphasized that it was of an "exploratory" nature with no commitments on either side. On various occasions the Kremlin has issued statements that Russia was "not averse to international collaboration in the air," but these have always been qualified by the frank admission that such collaboration could only be considered if it yielded "huge benefits" to the U.S.S.R. Except for purely military purposes, there has been no sign of relaxing this rule, even under the stress of war.

Although Russia, Great Britain and the United States were fighting on a supposedly unified plan against Germany from January 1942 on, British and American planes for delivery to the U.S.S.R. were not permitted to be flown by British or American pilots over any part of Soviet territory until establishment of Allied bombing bases in Russia for the Continental invasion in the spring of 1944. Planes destined for the Red Air Force under Lend-Lease, and scheduled for delivery via Alaska and Soviet Siberia, were taken over by Russian pilots *in Alaska*, for the fifty-mile run across the Bering Strait. Diplomatic procedure might have dictated such precaution, since Russia was at peace with Japan, and "incidents" would have been easy to create.



## 3. Air Bases

Without a general system of international security the safety of any nation will depend on its possession of well-supplied and constantly watchful air bases. The first object of this air defense must be to intercept an approaching enemy in the air as far as possible from the home territory; and certainly before the enemy has had opportunity to destroy ground installations, or to drop paratroopers. A vigilant defending air force, curiously enough, can secure a small area more easily than it can guard an extensive frontier. These were the contrasting lessons taught by the battles over Britain, and those over the long borders of Russia.

In America, the life and liberty of every citizen—whether American, Canadian, Mexican, or whatever his nationality—is going to depend upon how well the governments of the Western Hemisphere remember this fact. Europe from now on will be ten hours away; Asia less than twenty-four. An attack can be made without any more notice than that. These are going to be basic facts of life.

### POSSIBILITIES OF INTERNATIONAL AIR BASES

In an ideal world—which may one day evolve—it would be possible to keep the international peace by creating a globe-girdling chain of bases for an international aerial police force. These

bases, many located on islands in the great oceans, would serve both commercial and military purposes. Rescue and salvage of aircraft downed at sea will become of increasing importance to aviation, and fast surface vessels will need fueling stations at strategic points on the earth's watery surface. Likewise, for air passengers and crewmen, and perhaps eventual private pleasure craft, the bases would offer all the conveniences of the very best roadside filling stations in pre-war America. But these far-flung oases would have to do more than that. Each would need to be equipped with comprehensive medical supplies, and adequate first-aid practitioners. Also, each would need large stocks of the heavier repair parts, fuel, and—above all—the munitions which would be the safeguard of the world's peace.

There is no military secret about where such bases could be located to effect this purpose. Any fair-sized world-globe, a pair of dividers set to mark off radii of 500 miles, and you can choose your own set of bases.

From each base a regular patrol craft would fly out constantly on its beat, reporting by radio every aircraft sighted, and over the seas every surface vessel. At each, naval units of an international patrol could be stationed; and on continental bases, motorized riot-squads would be ready for any emergencies. If there were a system of international law, to which all important nations voluntarily agreed, there would not necessarily be any more "militarism" about such international police control than there is about the activities of the familiar traffic cop in any ordinary town—or in the peacetime labors of the United States Coast Guard.

All this would be fairly expensive, though not nearly so expensive in a year as a single day of war. But its efficacy would depend upon its acceptance by the majority of the world's populations. It could not succeed in its purpose where many millions believe—rightly or wrongly—that they are oppressed and seek to throw off the oppression by force of arms. It would not suc-

ceed unless frontiers were mutually acceptable to the great majority of those living close to them on either side.

### DEFENSE OF THE WESTERN HEMISPHERE

Since such an idyllic condition does not seem likely to be realized in the immediate future, it is the duty—for his own self-preservation—of every American to look into the matter of air bases which will assure the safety of the Western Hemisphere. One fact, taught by the present war, is that America's air base against Europe is the British Isles. The Britons, as they have demonstrated, are fully able to defend that base themselves; but it should never be ignored as a primary necessity that North American safety depends upon the maintenance of Britain.

Canada and the United States must be regarded as a unit, when it comes to defense. It would be exceedingly difficult to defend the United States if a hostile power managed to entrench itself in our northern neighbor. It has generally been recognized that the United States would defend Canadian territory against any enemy. It is also a basic concept of the joint United States-Canadian Defense Commission. The northern frontier of America is particularly vulnerable to air attack. Air routes across the Pole, as we have seen, are the shortest from both Northern Europe and Asia to America. The bleak Polar wastes are practically uninhabited and offer almost unlimited opportunity for infiltration by sizeable expeditions whose members have been selected and trained for operations in arctic regions. Only constant patrol of this area can secure us against the possibility of unannounced assault.

### ROUTE TO ALASKA

Canada has many islands around the American coastline of the Arctic Sea. Most of them are impracticable as sites for bases; but enough can be selected for use by particularly hardy aviators to maintain this all-important guard. On the two corners of the

continent the maintenance of air patrols is somewhat less rigorous—as to climate. Alaska, on the west, seems destined to be the chief United States territorial contribution to mutual defense. Immigration of settlers into this territory—which may eventually become a State—is almost sure to follow the war, and pioneers are traditionally a vigilant lot.

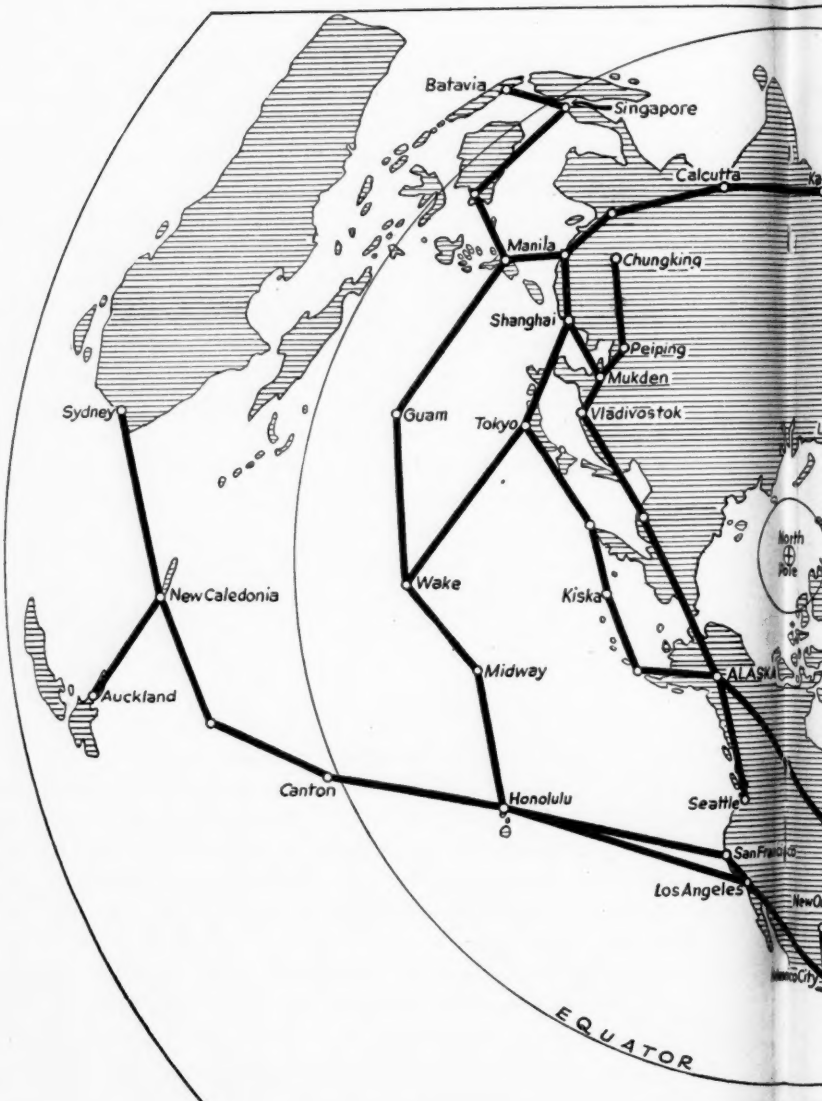
Alaska's great drawback as a place to live has been the difficulty and time involved in getting back and forth with supplies and produce. Aviation overcomes that difficulty, putting Fairbanks within a day's flight of Seattle, instead of a stormy two-week trip by sea. During the war this line has been routed over Canadian territory to permit the use of the comparatively small twin-engine transports used in the area for the national transport services. The Canadians are just as interested as the Alaskans or the citizens of Washington State in protecting the route and the forests, farms and cities that are under it. This protection must center in Alaska, with outlying observation posts in the Aleutians and the Pribilofs. Before the war Pan American pioneered in the operation of an "all-American" route from Seattle to Alaska which did not involve flight over Canadian territory.

### PACIFIC SECURITY

Just as essential to the security of the Pacific coast of North America is a firmly-knit network of island bases in mid-ocean stretching clear across to the Philippines and connecting with the Dutch East Indies and Australia. If the Philippines regain and keep their independence, they will permit—indeed, they will urge—us to establish and keep on constant alert a forward air base in those islands.

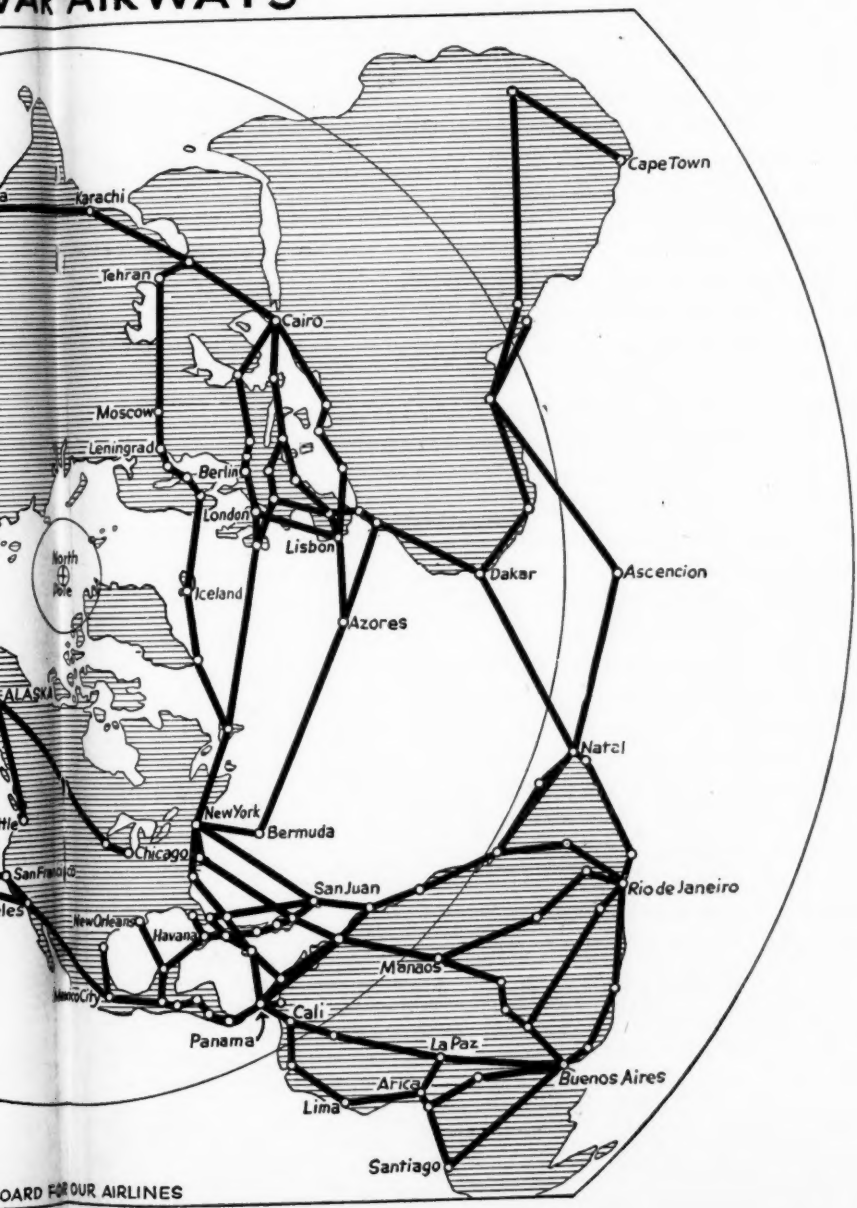
Friendly collaboration with China for peace in the Pacific will do much to keep down the dangers in that area. But China is a continental power, and we must never again forget that for many years to come—until a new generation has grown up in

# POST-WAR A




ROUTES PROPOSED BY CIVIL AERONAUTICS BOARD FOR OUR A

# VAR AIRWAYS




OARD FOR OUR AIRLINES

Japan—the Japanese nation, whatever may be left of it, will be a potential enemy of the United States.

In 1940 we, and our present allies, had plenty of bases in the Pacific from which to control Japan. Pearl Harbor was as good as any other in the world for fighting ships, land troops, and air squadrons. Singapore, the British bastion, and Hong Kong offered—on paper, and geographically—assurance against almost any assault by land, sea or air. The great error in regard to all of these was in overlooking the fact that an air base is quite useless all by itself. It needs the support of a whole network, each of which must be protected against espionage and sabotage by the probable enemy.

No one in a responsible naval or military position had any doubt about Japanese intentions. *The Congressional Record* in April 1940 discloses the fact that our Senate Naval Affairs Committee was fully advised by Admiral Taussig of what Japan had planned for us. This frank statement of what was going to occur only twenty months later, earned for the Admiral an official reprimand from Secretary of State Hull and the late Secretary of the Navy Knox in the shape of a "diplomatic disavowal" to the Mikado's government. The following day Representative Hamilton Fish, Jr., of New York rose in the House to denounce Admiral Taussig as a "naval propagandist."

We all now know that Admiral Taussig's statements were true; we know they were ignored. We know that the Philippines, Guam, Wake were not strengthened. We know they fell. We also know why they fell.

## "TIME IS OF THE ESSENCE"

That old legal phrase: "Time is of the essence" was never more true than in matters of military aviation. From 1931, when Japan first invaded Manchuria—in fact, from 1919, when Japan was given the Marshall and Caroline Islands with the blessings of the United States at Versailles—the whole Western world has had

warning after warning of Japan's growing aerial might, and her steady development of bases from which it might be launched. Failure to admit to ourselves the truth of what was plainly before our eyes permitted Japan's success. The casualty list of dead, wounded, missing and those who died in Japanese prison camps is a blame shared equally by every American, Briton, and Frenchman who preached non-fortification in the Pacific for fear of "irritating" the Japanese.

French Indo-China is a difficult area to hold, because of the non-fighting traditions of its peoples. Yet, in 1941, General Catroux, then Governor-General, begged the United States for just two hundred fighter planes with which to hold off the Japanese air forces, and prevent occupation by Japanese ground troops. In China, the then Colonel Chennault with far less—in fact, with hardly a tenth as many planes—had kept the Japs at bay. The whole story of what we—and our allies—did *not* do in the Pacific is familiar to everyone. It is a dismal story, but it should not be neglected on that account. It is a very important story, because nearly everything we failed to do from 1915 to 1941 is exactly the thing we should have done. It will cost millions of good lives, and hundreds of billions of dollars, and our victory will have been in vain unless we now take and hold the bases we should never have given to Japan.

## CONGRESSIONAL PLANS

Various plans for Pacific bases are under consideration by Congress, at least one of which is sponsored by the House Naval Affairs Committee in collaboration with the Navy Department. This particular plan leaves responsibility for maintaining the bases with the Navy because, it is stated, first: our Pacific bases (Pearl Harbor, Wake, Guam, etc.) were paid for mainly out of Naval appropriations; and second: the Navy has had seventy-five years experience in estimating and executing the responsibility of policing the Pacific. That is true as far as it goes,

and no American doubts that the United States Navy would discharge its responsibility with seamanlike efficiency. But the question of bases is not only a departmental matter. The mention of Naval appropriations recalls the fact that the Navy itself is a creature of the Congress; and Congress sometimes responds to public whim. Naval appropriations can be cut down to nothing, as they were from 1922 to 1936; and all the heart-breaking effort in the world on the part of the Navy cannot supply the material and munitions denied it by an apathetic electorate.

### TREATY BASES

Maintenance of these Central Pacific strongholds, and patrol of the Ocean by air police squadrons is not solely a concern of the United States. The safety of a good many other countries depends on it. Canada, Mexico, Central America, Chile, Peru, Ecuador, Colombia in this hemisphere are vitally interested; even more closely involved is the existence of Australia, New Zealand, and the Netherlands, French, and Portuguese Indies. Each of these has no less than some portion of its national safety at stake. It would be irresponsible and unjust for the United States to claim supervisory rights in the Pacific, and then leave the execution to changing public opinion. Both the dignity of the United States and proper regard for its own future safety, require that its duties in maintaining air and naval bases should be defined and limited by treaties with the other interested nations. That is the only businesslike procedure for a business people. The treaties would bind us to certain performances, and in turn would assure us of exactly how much support we might count upon in case of need. Only by such clear, unequivocal agreements with our geographical partners can the United States avoid the resentments which followed our petulant withdrawal from the world in 1919.

In the South Pacific, no less than in the Middle, there is need of bases. Islands, in this greatest stretch of water, are not so

thickly scattered as along the road to the Philippines and China. We have some islands, which we hold jointly with Great Britain, and on which the Stars and Stripes and Union Jack float side by side, with alternate garrisons and air crews. We likewise have some temporary bases, acquired and held "for the duration only" in the Galapagos chain, belonging to Ecuador. Continued use of these islands for this purpose is an essential safeguard to the security of Southern Mexico and Central America, including the Panama Canal. Below that, along the narrow seacoast of Chile, no islands exist that would be particularly useful either as defense bases for this hemisphere, or as points from which an enemy could assemble air fleets for attack. This is one reason for the often-repeated statement that no attempt should be made to defend South America below a line drawn across the continent westward from São Paulo in Brazil, roughly along the line of the Tropic of Capricorn.

### BASES IN THE ATLANTIC

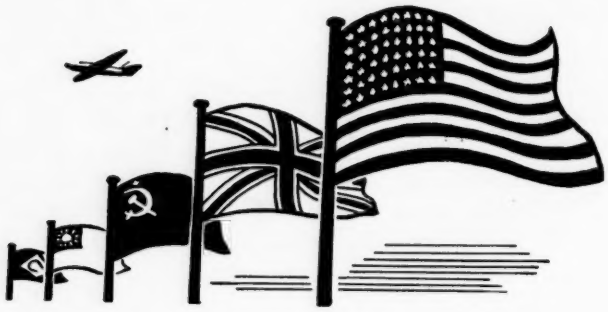
On the Atlantic frontier of the Americas, events of this war have shown the necessity of holding bases between Canada and Britain in the North. We have, "for the duration only," excellent facilities in Labrador, Greenland, and Iceland and, "for 99 years," on Newfoundland. Newfoundland and Labrador, as parts of the British Commonwealth and inevitably tied to Canada, must be maintained either by the Canadian Government or under some joint-expense agreement. They are an essential for our mutual defense. Iceland, as a newly independent republic, is more of a problem. We were invited but not welcomed in Iceland, and we have remained there only on polite sufferance. Whether or not the fiercely independent, democratic Icelanders—whose Parliament is the oldest in the world—can be brought to join willingly in a defense system which would be for their own protection, is a question only the future can answer. The same holds true of Greenland, that icy Danish possession.

The only other considerable islands in mid-Atlantic are the Portuguese Azores and Cape Verdes, and the Spanish Canaries. The Azores are an indispensable bastion for the air defense of the Western Hemisphere, and the safe patrolling of the mid-Atlantic. These islands were a fueling ground-fall on the pre-war and present Pan American route to Europe via Lisbon. Since 1943, they have been used jointly by Anglo-American air and sea forces as a supply and patrol base. There is every reason to hope that such use may be extended, under definite treaties, into the era of the peace.

Portugal, with its possessions in the Atlantic and Pacific, but without either an air or sea fleet, has depended upon Great Britain's Royal Navy for the past three hundred years. England has been faithful to this trust, and Portugal naturally wishes to continue the association. Moreover, the Portuguese Cape Verdes are on the line between Natal, at the tip of Brazil, and the logical attack-points on the tip of West Africa, at Rio de Oro, or Dakar. As has been stated, the relationship between Portugal and Brazil is close, and use of the Cape Verdes for a buffer-base in Brazilian defense would not likely be denied.

Natal, of course, is the chief Atlantic air base on the Southern continent of this hemisphere. Jutting out into the ocean, it provides a vantage point from which to survey the whole northeastern corner of South America. Likewise it commands the air approaches to the Caribbean, lying on the flank, and is in much stronger strategic position to repulse an air threat to that area than are the string of bases we have hastily put up on the Virgin, Leeward and Windward Islands. Actually our "bases" in the Caribbean are simply supply dumps from which we would hope to replace such munitions, matériel, including planes, fuel, and personnel, as might be needed on the front air lines. Except for a desperate last-ditch defense, however, these Caribbean and Bermuda bases are too near our own continental coastline to avert serious damage through invasion—or rocket-propelled

bombs. So long as they are vigilantly maintained there is little chance of any enemy air fleets getting over them in force. But vigilance must include maintaining distant sentry air-posts. As in the Pacific, if we had held all the islands between Hawaii and the Philippines, Pearl Harbor could not have been bombed. So, in the Atlantic, if we have allied watchers from Iceland to the Cape Verdes and Natal, our enemies coming from Africa or Europe will be met over mid-ocean.



## 4. Aviation in International Law

The most important task for the victorious nations in constructing a peaceful world will be the formulation of rules to govern international civil aviation. Nothing else governments can do, or may leave undone, will have so direct an effect on the lives, the prosperity, and the freedom of every individual human being for the next fifty years. That is a very strong statement. It is intended to be. The facts fully warrant it. Whether the next half-century is to be one of peace and increasing understanding between peoples of different nations depends on finding a common-sense, liberal, plan for co-operative use of the trackless air-highways on which political frontiers cannot be marked.

### AIR AS "NATIONAL PROPERTY"

Agreement for common use of this surrounding atmosphere, under proper safety rules applying equally to aircraft of every nation, is of far greater moment than the demarcation of borders between any nations on the globe itself. During the forty years since the Wright brothers first lifted a "flying-machine" into the air by mechanical power, only one legal theory about air travel has been universally accepted. This is a relic of surface-borne travel—the doctrine, enforced by all nations today, that *air is national property*, just as is the earth inside of national bounda-

ries, and the ocean water within twelve miles of the national shoreline. The theory, in legal phrase, is that "the national sovereignty extends infinitely into the heavens along the contours of the national frontiers."

This doctrine was adopted at the Versailles Peace Conference in 1919, to the great disappointment of President Woodrow Wilson. Mr. Wilson had hoped that the air would be equally free to all men, of all nations, at all times for peaceful travel. This hope was one of his fundamental concepts of a peaceful world with all treaties and transactions between government being discussed and agreed upon with the full knowledge of all the peoples involved ("open covenants, openly arrived at") and with communications unhampered by censorship or customs barriers. He believed that the ease and speed of air travel, free of artificial hinderances, would break down the misunderstandings of isolation and ignorance, and destroy the mental seeds of wars.

### NEED FOR SAFETY-CONTROL

Theoretically, a plan of this kind would be perfect—but only if all men and all nations were men and nations of good will. Those who advocate complete Freedom of the Air overlook, or deliberately ignore, the essential facts of aviation. Air transit is not only the swiftest and most efficient means of transportation yet devised, nor is it only the most terrible weapon yet developed for killing human beings and destroying civilization; it is also an increasing hazard to innocent life and property. Without any intentional malice a single aircraft, out of control and following the law of gravity alone, can do considerable damage; a large number of craft, constantly flying without strict regulations and the most careful inspections, could pile up a tremendous total of accidental destruction. For this reason alone aviation presents a problem of safety-control unlike any other in legal history.

## WHAT IS FREEDOM OF THE AIR?

Freedom of the Air must be distinguished from Freedom of the Seas. The two slogans sound alike, but the implications are dangerously different. No country claims sovereignty over the open sea. A peaceful ship, moreover, on the high seas, three miles away from an inhabited shore, cannot damage anything except another ship. Even after coming into port a peaceful ship lies moored to a dock, or anchored in the harbor. The ability of any unfriendly member of the crew is strictly limited as to hostile acts, or preliminary spying. Shore police can take care of any such individual evil-doers. The ship itself is incapable of penetrating the country beyond the shoreline, so that its ability to cause damage is limited by its own nature. Moreover, a harbor has seldom been so crowded with vessels as to be unable to shelter just one more.

On every one of these counts almost the direct opposite is the case with aircraft. Anything jettisoned from a plane will inevitably hurtle to the surface of the earth, whether it be a child's toy or a bomb. Ground facilities at airports simply are not great enough to take care of large numbers of unexpected visitors; nor is it possible for planes, running short of fuel, to wait patiently above the port, as ships may outside a harbor, until a landing berth has been cleared. Even more serious than these difficulties in regard to peaceful planes, is the ever-present possibility that aircraft may be deliberately used by an unfriendly nation for a sudden stupefying attack without warning, against which there is no sure defense, except to keep check on the passage of all aircraft through the global skies and to intercept immediately with aerial police any unidentified plane or group of planes.

## OUTLOOK FOR INTERNATIONAL CONTROL

This will require an international agreement and an international control organization totally unlike anything ever yet perfected.

Theoretically, this organization need have nothing to do with politics of any kind. Its concern should be with the mapping out of air routes, all around the globe; the maintenance of great airfields on the principal routes, together with a global intercommunications system, and subsidiary emergency facilities of thickly-scattered fields for forced landings; rescue stations on land and sea, weather stations and radio-directions networks covering the land and water surface of the earth. Each of these posts must be kept supplied with motor fuel, with food and medicines, on many Pacific islands even drinking water will have to be provided artificially by import or distillation. The total of this in monetary cost is staggering, but it is the basic necessity for full development of aviation.

International details of such operations can be worked out by practical men. In time a method of financing the great expense will, also, doubtless be evolved. But none of this will be possible until an international legal agreement has gained support from the overwhelming majority of peoples. This support cannot simply be a formal acceptance; it must be an enthusiastic recognition of aviation as an entirely new way of life which will ultimately erase all geographical and racial barriers, or must lead to anarchy and a war era of human self-destruction. At present only the hope exists of some such ultimate plan. Although today (1944) Anglo-American air transport services are operating a nearly-global organization, it is solely for military purposes and may disintegrate rapidly under the fierce governmental rivalries of peace—the political tugs of war.

## LEGAL STATUS

Prior to 1939 the legal status of aviation was a rather pathetic makeshift; an attempt to harness a powerful engine with a rope of straw. Practically every European government had its own official air line, so that at the outbreak of war the continent was crisscrossed by a tangle of air traffic, much of which served no

economic purpose whatsoever and only flattered political conceit. Due to national jealousy, these government lines seldom made good connections with lines of other nations, and in many cases made no connections at all.

Obviously this condition makes no sense. Air travel is not controllable by political boundaries—in many cases less than five hundred miles apart, but by the logical distance between great centers of commerce—often more than a thousand miles apart.

The chief legal difficulty rises from this fact that every aircraft, whether commercially, militarily, or privately owned and operated, has a much greater degree of public liability than is the case with any other vehicle. Every government is in duty bound to protect its citizens against unlawful or careless use of the air hazardous to life, limb or property beneath. Control of commercial and military craft is fairly easy, in normal peacetimes. Commercial pilots are carefully chosen and trained, and closely supervised; the exact locations of commercial planes are known almost from moment to moment. Obviously it will be far more difficult—if not impossible—to stretch such a system to cover a large number of private civilian planes.

### METHODS OF CONTROL

Obviously, the surest method is control at the source by a rigid examination of planes and pilots before any licenses are issued permitting their use of the common air. In the United States, Canada, and pre-war Britain and Europe, this method worked rather well, but the total numbers of craft involved were exceedingly few compared to the numbers expected after this war.

The difficulties faced on surface highways in the United States with traffic violations of the automobile codes are good precedents for judging how much greater will be the problems of policing the air. Progress toward this end, however, is being made by quiet, practical study by representatives of the United States Civil Aeronautics Board, United States Air Transport

Association, and similar bodies in Canada, Mexico, Australia, New Zealand, Great Britain, and the exiled European nations which have Atlantic Ocean or Channel shorelines. The blueprints eventually worked out at these consultations will give a basis for efficient legislation, which it is to be hoped Congress and the various Parliaments will ponder seriously.

Some blatant oratory has already issued from politicians in various countries about "sovereign rights to dominate air currents." Most of these remarks have come from non-flyers, and have shown little knowledge of aviation facts, and even ignorance of political theory as it applies to aviation. Luckily for the world such mental laziness—about aviation at least—is not likely to endure much longer in any legislature. Certainly within two elections after the close of the war every legislature will consist of some men and women who have had personal experience with the unbounded reach of travel through the air. And those who know the air will be better equipped to make laws for it.

### COMMERCIAL PASSENGER AND CARGO FLIGHTS

It seems probable at present that for several years, at least, immediately following the war international flights of privately owned aircraft will be legally restricted. Regional agreements, of a more or less experimental character, may encourage flying between countries in North America, and even some in South America, but large-scale flying of private planes is not likely during the reconstruction of Europe. Commercial passenger and cargo flights are another question. These will undoubtedly be resumed on a scale only dreamed about before the war. For such air traffic there is a legal basis which can be clarified without much difficulty.

### RECIPROCITY AGREEMENTS

On the main trade routes in which two or more countries have dominant stakes, it is almost certain that the pre-war reciprocity

agreements on commercial flights will be maintained, at least for the first few years. So far as the United States is concerned our air picture is affected by only two such reciprocal agreements; the first with Great Britain, including the British possessions of Newfoundland and Labrador in Canada, and Northern Ireland; and the second with France. Both of these apply to routes over the North Atlantic.

The reciprocity plan provides for certain numbers of flights by the craft of each nation, with specified ports agreed upon for landings, and flight-schedules in both directions fixed legally, in advance of beginning operations. Equipment and crew-members of all such planes are inspected by their respective home authorities according to standards which have been agreed upon by both nations. This plan gave good promise of working advantageously for both parties, although flights had hardly begun to proceed on schedule before the war put a stop to commercial trans-Atlantic flying. But the experience even of those few months of commercial flight taught several valuable lessons. It established beyond further question the fact that aviation cannot be planned or controlled on a local basis.

The United States Congress has had the advantage of this practical knowledge in framing the forthcoming Civil Aeronautics Act, which is designed not only to make air travel safe over North America, but may also be used as a pattern for our national air policy in establishing international rules. Along with Canadian and British pilots Americans have now more practical knowledge of actual flying conditions all around the globe than any other nationality. This mass of knowledge, carefully assembled, will be of enormous technical assistance in post-war aviation operations. But because it has been acquired under war conditions of alliance with other nations which have temporarily waived all questions of sovereignty; and because military necessities take no note of cost, the war experience will not likely be of much commercial value.

## POLITICAL CONSIDERATIONS

Still undecided is the fundamental question of isolation, co-operation with all other nations—provided also that *they* will co-operate with us—or partial co-operation with some nations as against other nations. All this is where our political decisions cannot be cut loose from our aviation policy, and where much of our economic future as well as our chances for peace depend upon what decision we will shortly make.

Under the reciprocal system before war began, the United States had agreements with Great Britain, Canada, Ireland, France, Portugal, Denmark, and Sweden. Except for Great Britain, France and Canada none of these nations had any commercial aircraft of importance. France as a signer of the Versailles Treaty, had a rigid code of aircraft regulation, and had harbored a number of official and unofficial air associations for the purpose of standardizing aerial traffic practice in the same general way that Lloyds' Maritime Registry in London helped to standardize rules of the sea for merchant shipping. France, apparently, hoped to occupy in the air the great role Britain has played on the surface oceans. Most of the European nations were members of these French-sponsored organizations. But remaining outside were the United States, the Soviet Union, China, and all Latin America except Argentina, Peru, and Uruguay.

## PAN AMERICAN'S COMMERCIAL AGREEMENTS

Actually, as is intimated above, the only functioning reciprocal agreements made by the United States Government were those with Great Britain and France. American-flag ships had landing rights at Southampton; British-flag ships operated into New York and Baltimore. There was no question of specific reciprocity in our agreements with Eire and Portugal, since neither nation had a trans-oceanic aviation system. Practically viewed, the overwhelming proportion of United States pre-war agreements for international air transport were not the official acts of govern-

ment. With only a few exceptions most flying rights outside North America for American-flag ships had been developed by Pan American Airways as a strictly commercial proposition. These commercial agreements gave Pan American the rights to operate to, and through, sixty-seven countries and colonies. They were outright commercial franchises of the respective governments to a private United States corporation, which involved no granting of reciprocal rights by the United States in return for the privileges granted Pan American.

This practice had a great advantage. It avoided the dangers, implicit in official treaties, of embroiling the new industry in a maze of domestic and international politics. Without impairing the authority of the CAB, it established American aviation internationally. Indeed, it strengthened the position of the Board by saving it from being made subject to international pressure in the determination of its policies.

### CIVIL AERONAUTICS ACT

Under the present Civil Aeronautics Act, the controlling law on the subject for the United States, any flight operators desirous of flying to the United States, must appear before the Civil Aeronautics Board at a public hearing and have their cases determined in the light of public convenience and necessity. The CAB's consideration of these cases is, and has been, based solely on the economic, industrial, and national defense factors involved. A further safeguard exists in the provision that any operating certificate granted for an international line must also be approved by the President of the United States. This is for the purpose of insuring that any agreements for operation that the CAB may make will not be contrary to the existing foreign policy of the Government. And before Presidential approval is obtained the Executive submits the specific proposal to the various Departments: State, War, Navy, Commerce, etc., for consideration and advice.

The pre-war policy in regard to official aviation agreements was particularly adapted to the war clouds that were gathering throughout the 1930's. Subjecting these delicate questions of international commercial rights to the fury of partisan debate could have served little practical purpose. Certificates for foreign operators from the CAB are, as appears here, granted only after the utmost precautions have been taken to safeguard the national interest. Yet, unlike treaties between nations, they do not require ratification by the Senate. All the agreements were plainly stated to be temporary, and were subject to sixty days' cancellation notice by either nation, or by the commercial company of either nation which was specifically authorized to establish a route. This tentative basis put the United States at considerable disadvantage, as all American carriers are private corporations in business for profit and could not invest large sums of their stockholders' capital in foreign ground facilities which might be taken away within any given sixty days. The foreign competition was, almost without exception, government-subsidized and prepared to defend its expenditures of tax-raised money with the whole weight of diplomatic support.

## CIVIL AERONAUTICS AUTHORITY

Partly to compensate for this imbalance in foreign competitive dealings with American aviation, Congress set up the United States Civil Aeronautics Authority. The Authority is divided into two groups for reasons of efficiency. The one, the Board (CAB), has absolute power—granted by the Congress—to make regulations for the operation of aircraft over the United States and its possessions, including the elimination of uneconomic competition.

The law provides, however, that an appeal may be taken from any ruling of the Board to the Federal Court of Appeals. But in general the CAB can and must lay down the rules under which aircraft and pilots are examined and licensed. In wartime

it approves or directs amendments of schedules and rates for air passengers and cargo. One of its specific duties is to prevent any particular airway from becoming overcrowded and so dangerous to air traffic. A needed amendment has been proposed —one which would give it power to reach into any American home or business property near an airport, and to keep all approaches to landing fields clear of dangerous obstructions.

Under this amendment the CAB would be "authorized to require such conditions as will result in the protection of approaches to landing areas and the freedom of approaches and such areas from obstructions to air navigation." In plain words, the CAB would have the right and duty to inspect all buildings, smokestacks, powerlines, flag poles and every other construction or natural object sticking out of the ground near a landing field. If anything sticks up too high the CAB would have full power to order its removal. This may seem drastic and dictatorial, but it is rooted in common sense and the oldest legal precedent in the United States.

One of the first rules laid down in the infancy of the American Republic was that the Federal Government has complete authority over all navigable waters in the various states. In the Air Commerce Act of 1926, which was the first attempt to regulate United States air traffic, the fact was recognized that navigable *air* space is simply the greatest of all navigable *waters*, of common benefit to the whole nation, and therefore under the Federal control, not subject to local authority or private ownership. Two hundred years ago this power had to be used to prevent selfish, or cantankerous, individuals from building dams and other traffic obstructions in the rivers and streams which were the first highways in America. Today it must be reasserted to prevent the same type of local politician or property owner from endangering the lives or hampering the legitimate journeys of fellow citizens.

CAB rulings are administered by the other section of the

Civil Aeronautics Authority, the Administration, which operates through the Department of Commerce in order to co-ordinate, with a minimum of trained personnel, the enforcement of all Federal traffic regulations on land, water, or in air. Most of the duties of the Civil Aeronautics Administrator are, of course, domestic. But it also observes and carries out the international policies of the CAB, through our attachés in all our embassies and legations abroad.

In driving future post-war bargains with foreign carriers it now seems certain that every agreement will be based on the existing principle of national air ownership. Apparently the pre-war agreements with Canada and Great Britain are to be extended and possibly widened in scope. Canada has already entered into tentative air-treaties with Great Britain and Russia, and has proposed a very detailed outline for a general air policy. The exiled governments of Europe are attempting to re-establish their former air lines by operating from such colonial fields as were never overrun, or have been recovered from enemy hands. All these are signs that a violent struggle for air-space is expected which has within it the seeds of many "little wars."

### THE ANZAC PLAN

But there are other indications that an earlier trend toward international organization instead of anarchy in aviation may finally be brought about. In January 1944 Australia and New Zealand signed a pact of co-operation which amounts to a challenge by small nations against imperialistic monopoly of the greater powers. For international civil air transport this agreement proposes an International Air Transport Authority which would be given by treaty "full control over all international air trunk routes, and would operate all air services over these trunk routes." Under this plan the International Air Transport Authority would own and operate all the aircraft and ground equipment, would employ personnel from all the member nations on

a "fair proportionate basis," and would set up international requirements as to safeguards, including surface rescue facilities, and landing and transit rights for all international traffic and the carriage of mails and cargo. Failing any such international organization, Australia and New Zealand declare they are ready to "install and support a system of air trunk routes controlled and operated by the various Governments of the British Commonwealth of Nations under government ownership."

The purpose of a joint Commonwealth Air Transport is intended to be more practical than political. It would avoid all problems as to different passport and customs regulations at the various landing fields throughout the Commonwealth; a unified system of communications, traffic signals and weather reports would be easy to install; surface auxiliary facilities could be supported by the various naval establishments of the Commonwealth Nations, all of which have been trained in the traditions of the Royal Navy or the British Merchant Marine. It would, in addition, have the advantage of a common language, and a common code of basic law. Most advantageous of all, naturally, would be the fact that such an association would, automatically, be provided with a globe-girdling series of landing fields without any problems of sovereignty, and with freedom to fly either across uncontrolled oceans or the membership territories of South Africa and Canadian North America en route. These advantages of the British Commonwealth would inure, for air transit purposes, to the common benefit of all members of an international association such as Australia and New Zealand propose. Very largely, the question of whether such an association will become a fact is up to the United States and Canada, to both of which the Pacific nations look for mutually helpful commerce in time of peace and support in time of war.

It has been stated that European nations with colonial possessions might eagerly join the Anzac association. From almost any practical point of view toward maintenance of peace its advan-

tages outweigh its drawbacks. But it cannot be established without a series of treaties on the part of the various governments, including the United States. Whether the United States Senate will have the courage to abate this much of sovereignty will doubtless be a deciding factor, and it may well be also the answer to the "how and when" of World War III. Many smaller European nations are equally reluctant to sacrifice the nationality and the prestige of their own air lines.

### THE CANADIAN PROPOSAL

Canada, well aware that next to Russia she occupies the most advantageous geographical position for air commerce, has made a bold bid for the leadership to which she believes that position entitles her. Considered impartially, the Canadian plan appears to be the best yet officially sponsored by any important government.

Boiled down to its essentials, the proposal calls for "the right to be acknowledged by all nations of registered aircraft to innocent passage through any national air." International registration would be accomplished by setting up an Aviation Authority along the general lines of the United States Civil Aeronautics Board. This international body would also be empowered by the legislatures of the various member nations to apportion air routes "fairly and equitably among all the member-nations to meet the needs of the people of the world for efficient transport and so contribute to the establishment and maintenance of a permanent system of general security."

Under this Canadian plan, each member nation would retain full authority to decide for itself whether its air carriers in international service should be privately or State owned; and whether it should have one single company for such service, or should permit competition by several companies. Canada's idea of "the right of innocent passage" includes the automatic right to cross the territory of any foreign nation en route to a destination as

well as the right to land in any country for refueling and servicing, without having to obtain the specific permission of each government concerned. Abuse of this liberty would be controlled under general regulations laid down by the proposed international air authority.

For itself Canada announced that within a year after the close of the European war all Canadian railways would be required to dispose of their ownership in air lines, so that transport by air would be entirely separate from surface transportation. This policy is parallel to that of the United States Civil Aeronautics Board, and is a safeguard against transportation monopolies. The significant thing about the Canadian action is that Canada's largest transportation company—the Canadian Pacific—also has one of the best trans-Atlantic steamship services in America, and was preparing for extensive operations in the air. Furthermore, the Canadian proposal specifically exempts from international control all cross-border lines, such as those which have successfully been operating between the United States and Canada during the past fifteen years.

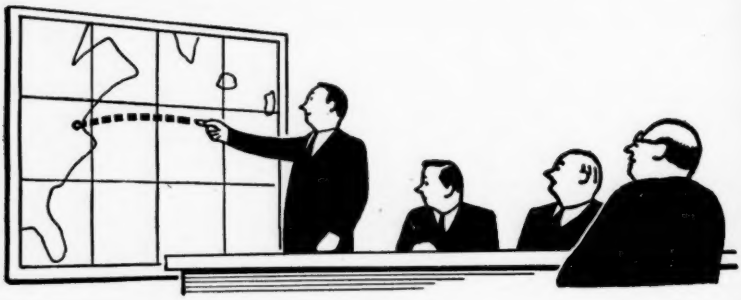
This last exemption will probably prevent the Canadian plan from being accepted in Britain, even as a basis for discussion, since it would weaken the Commonwealth position of offering all British nations as a unit in bargaining with other air powers.

### OUR OWN ENLIGHTENED SELF-INTEREST

In the United States, the Canadian plan is privately acknowledged as a sound basis for post-war international co-operation. Officially, however, the whole aviation problem, involving as it must some relinquishment of sovereignty, is politically a most sensitive matter to tackle in the midst of war and domestic political crises. Yet it has been tackled, at first in "informal, exploratory get-togethers," and more recently, in Great Britain, at more "formal" conferences. The possibility of a United Nations' avia-

tion conference has not yet come up but, as has been stated officially by Mr. L. Welch Pogue:

> "Our own enlightened self-interest and that of all other nations requires that, as a part of aviation's future international arrangements, a world charter be given to aviation now by granting generally this right of commercial air transit, facilitating the future establishment of commercial outlets at all points where future world developments may make them desirable."



## 5. Ownership and Operation of Commercial Routes

"Ownership" of international air routes today is a highly debatable subject. Establishment of routes means, practically, a system of landing fields, supply bases, a communication system, and other safety and service installations. With very few exceptions today there are no commercial air lines except those permitted by military authority. The United States has one route from New York to Lisbon, Portugal, and Foynes operated by its owner, Pan American Airways. Also, American Export Airlines flies from New York to Foynes. There are also two routes from Texas into Mexico, operated by American Airlines, the company which installed them. Pan American still operates its schedules from Miami to various points in South America. In Europe, outside of Hitler's Reich, Sweden manages to keep a few ships in the air, at rather interrupted intervals, to communicate with Britain, some points in Germany (Berlin being erased as an air stop), and Finland; Lisbon has been a regular airport for planes of the Lufthansa from Germany, and of the BOAC (British Overseas Air Corps.) from London. There is limited service between Lisbon and Madrid, and Switzerland, carried by a none too dependable Spanish air line. On each of these routes military priorities are necessary to get space, and travel is for official business only.

In North Africa and Asia Minor, the airports at Cairo and Ankara are frequently visited by planes with the markings of Réseau Aérien Français, Sabena from the Belgian Congo and BOAC generally loaded with official brass hats. But no regular schedules are maintained, all flights being under control of the military. The Lufthansa claims regular flights to Ankara from Germany via Bucharest, but that could hardly be called an "established air line" in view of what is likely to happen to German aviation.

Much of the territory served in pre-war days by the world's largest international air line—Pan American Airways—is now in enemy hands, or is a wartime part of the Army's Air Transport. Of the nearly 100,000 miles of route for which Pan American holds permanent operation certificates from the CAB, only the New York to Lisbon and Foynes, Eire, and the lines to South America and Hawaii are actually functioning.

The great trans-Pacific route, pioneered by Pan American via Midway, Wake, Guam, and the Philippines to Macao and China suspended operations on December 8, 1941. Pan American's affiliate CNAC is flying cargoes with civilian pilots in unarmed transport planes over the hump of the world from Assam in India to Kunming and Chungking in China. In March 1944 one of these pilots reported sighting (and nearly hitting) the world's highest mountain peak—hitherto considered legendary—a 31,000 foot height near the unexplored head waters of China's greatest river, the Yangtze Kiang. But even this is very clearly a wartime job. Much of the fuel, parts, and supplies servicing the B-29 Superfortress is carried under ATC auspices over this route.

Of the trans-African route, no Pan American planes or personnel remain, except those members who accepted commissions or ratings in the Air Corps and were placed on duty with the African division of the ATC. No American company has been given anything other than temporary permission "for the duration" to operate in Central Africa, or in French North Africa. Franchises for that continent are still divided among the remnants of air lines

which were established by the European nations having colonies: France, Belgium, Holland, Great Britain. Pan American still holds its permanent certificate for the northern route to Asia via Alaska, although this route—so far as is militarily possible—has been used by other lines and by the ATC.

The Ferry Command, predecessor of ATC, was an outgrowth of Pan American's War Department contract to build a supply route from America across to West Africa, and then to Cairo, up to Russia, down to India, and across the hump to China. Pan American's experience in dealing with nearly every kind of property owner, and in meeting every variety of climatic condition from fogs around the Arctic ice cap to the stifling miasma of tropical jungle fitted it for the job, and it undertook to train both American and British personnel.

Under the War Department contract, Pan American built, in its own name, forty-eight airports in fifteen different countries; and the full story of its development of aerial signalling, control of tropical diseases and other difficulties is one of the permanent benefits which will come from the war. But commercially, no American company has been given any permission to operate in any part of Africa. When hostilities cease, all rights and facilities revert to the British.

As for the Belgian Congo and French Equatorial Africa, Pan American holds permanent operating rights and has a certificate of convenience and necessity for its regularly scheduled services between the United States and those territories.

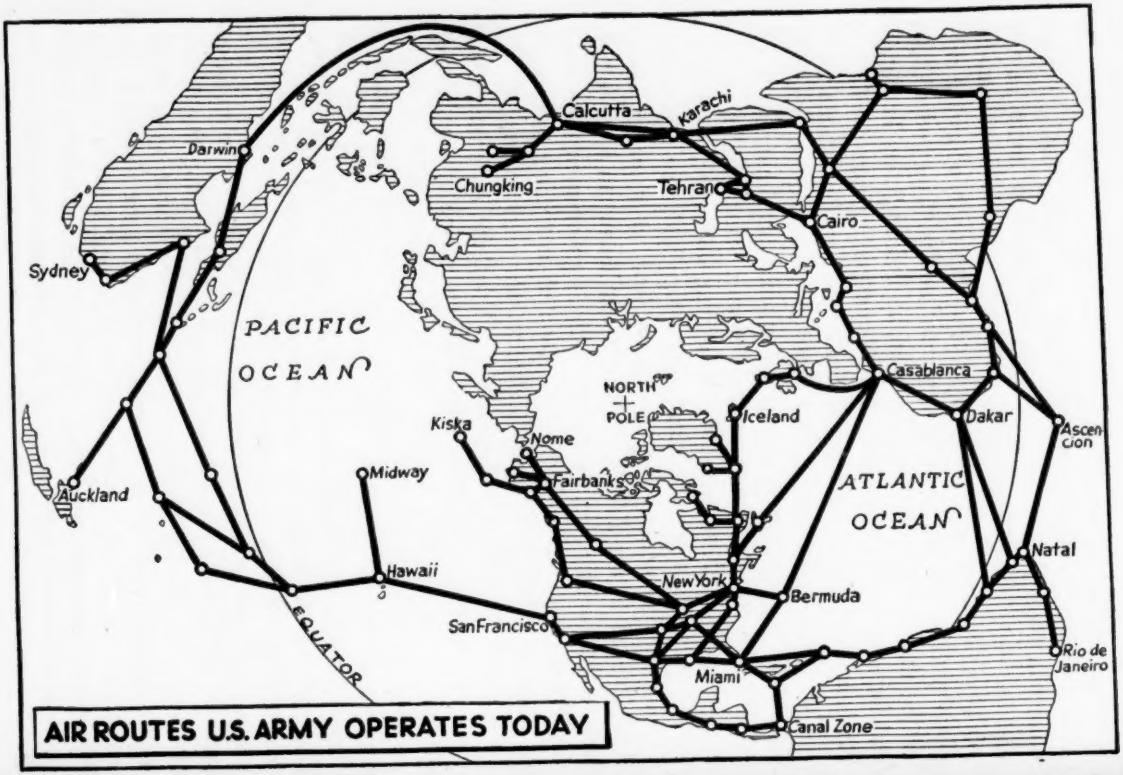
Pan American's unique achievement was in conceiving a method by which a private corporation, chartered under the laws of one nation, and subject to the regulations of that nation's Aeronautical Board, could deal with some forty-odd foreign governments so as to obtain, not only flying and landing rights, but full permission and authority to set up and operate communications systems, services of supply, hotels, and medical stations for its patrons. This is said without prejudice to many other, American, British,

Dutch, French, and even Italian and German air lines. There is enough credit to satisfy all. But although someone might have done this sooner or later in the normal course of aviation, the fact remains that the Pan American group did it. This pioneering job also was done without a single penny's worth of *direct* subsidy from the United States Government, and with no undue claim on the time or effort of any diplomat in United States Embassies and Legations. However, without mail contracts from the United States and other governments, it could not have been financed.

The moral, if it has to have a moral, is that aviation, properly presented as an instrument of commerce and mutual profit between nations, carries its own diplomatic punch and needs no officially-endorsed ambassadors. The war, however, may have drawn the curtain on what was once a free and easy procedure.

Competition, which Pan American had to meet in South America and in the Far East, came from European lines which were either owned directly by the various governments, or were subsidized by grants of money to cover all operating costs with an additional bonus of cash payments for carrying mails. To attract business away from these other lines, the American company had only one thing to offer—better service at the same or less cost. The first step toward that was development of better planes, and American designers produced the first four-motored transports—which were the forerunners of our best bombers today. This plane when finally perfected, was the Clipper, a type that proved equal to use on regularly-scheduled commercial passenger service for trans-oceanic flights.

Constant pressure of such competition brought out twenty-seven different new designs for various American-flag lines from the beginning of our international air traffic about 1930 to its suspension in 1941. When peaceful conditions are restored, the same initiative is to be expected. Already, Canada has announced that it expects to go into production with a new, and very much improved type of four-motored passenger transport based on


Calcutta
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ATLANTIC
OCEAN
Auckland
Natal
Hawaii
New York
Bermuda
EQUATOR
San Francisco
Rio de
Janeiro
Miami
Canal Zone
AIR ROUTES U.S. ARMY OPERATES TODAY

experience in building and flying military transports. This will give United States designers, builders, and air lines something to sweat over; and they will not be caught napping.

### COMMUNICATIONS

Aside from the actual flying-stock, however, the American airline pioneers determined to build a service that could not be equalled at any cost. This entailed an elaborate communications system crossing a number of national frontiers, involving innumerable regulations concerning the use of telephone and telegraph wires and radio waves. Since the primary purpose of these communications was, however, to secure the safety and convenience of passengers and cargo in the air, and had no political connection whatever, the various foreign governments approached were sympathetic and co-operative in the great majority of cases. This is a most important point for the future, since those same governments might not be so receptive if they had to reply to an official request from another sovereign nation.

Communications are the life-blood of aviation. Today the greatest communications system on earth belongs to the United States Army. It literally girdles the world, and is eyes, ears, and brains for the United States Army Transport Command (ATC).

### THE ARMY AIRWAYS COMMUNICATIONS SYSTEM

This Army Airways Communications System (AACS) not only serves the Air Corps. It also keeps contact with all flights by commercial planes, and is voluntarily queried by several of our allied air services. AACS is the perfect enlargement, on a global scale, of the initial pioneering done by American-flag lines to protect their paid charges. It has stations located in forty-eight states and fifty-two foreign countries and territories. In fact General H. H. Arnold, Commander of the Army Air Forces, tells us it is now possible for a plane to fly blind all around the world guided entirely by AACS radio navigational aids.

The first leg of the system connected all the airports along the northeast edge of South America from our great air base at Miami down to Natal, then to mid-Atlantic, on Ascension Island, and to the old Ferry Command's first African base at Accra. It goes across Africa on the north, the Mediterranean shore to Cairo and Tehran; in the center to Khartoum, Karachi and Calcutta in India, up to Kunming and Chungking in China, down in a great sweep across the Bay of Bengal to Darwin, Port Moresby, and across the Pacific—island by island—to Hawaii and San Francisco. Every new atoll wrested from the Japs immediately becomes the newest link in the chain. It covers all the air routes in the United States, Alaska, the Aleutians; and it guides all planes along the North Atlantic route via Newfoundland, Labrador, Greenland, Iceland, the Faroes, the Shetlands, and the Orkneys—to Great Britain. Look at the map! It's worth drawing a diagram with a red pencil.

This organization functions almost miraculously. It has aided in the development and perfecting of methods and communication-detection devices that would amaze the pre-war pilots. With less than 25,000 total personnel, AACS keeps track of all planes in its orbit, guides each from station to station, advising of weather conditions along the route, and directing at what speed, and what level each shall travel. Take-offs and landings are executed on split-second orders from the control towers in busy ports. Approaching planes are warned to slow down if they are coming in at a crowded moment. Air levels are apportioned, and discipline is rigid if there is any disobedience. The system operates radio stations, air-base control towers, beacons, teletype systems, radio rangers and other communications facilities.

All this adds up to the fact that the much-advertised "international air-traffic control" *is* operating as a practical system for the safe flying of planes. The catch is that the system is American; it is functioning now in scores of countries each of which regards this useful service as quite possibly necessary as a temporary war-

time device, but since it is an official military organization of a "sovereign nation" it may be found diplomatically "intolerable" after peace to the governments which now welcome and utilize it.

### A POST-WAR COMMUNICATIONS SYSTEM?

There is nothing hypocritical, or even surprising, about that. We Americans would probably be the first to resent and demand the ousting of a British or French or Russian army communications system set up on our sacred soil. We can hardly blame anyone else for feeling the same way. Yet it is obvious, and will be even more completely proved, that this kind of system is an essential to safe and sane flying on the international scale. It is also fairly evident that the only kind of communications system worth operating is one which is unified, with personnel trained according to a single standard of signals, and use of standardized devices. The logical answer is to constitute a non-governmental system of international ownership, or of a strictly commercial character which could charge each government for its services, on the basis of the number of planes registered by such government as fit to fly.

Already, it is known that some governments have made proposals to take over their "national link" of this communications system, to operate as an independent organization. Whether these suggestions are simply bargaining points in the larger struggle for position in post-war aviation will develop as the various conferences now in progress publish their proceedings. Communications can be agreed upon in some practical manner, following precedents for mail, cables, and similar problems which have been satisfactorily adjusted in the past.

### COMPETITION VS. A "CHOSEN INSTRUMENT"

But the basic policy of how many planes a nation may authorize to fly through "foreign" air is a matter much more liable to create serious differences which may have a damaging effect on

all international aviation. For the present the question arises only in regard to commercial planes since the number of private planes crossing national borders is not expected to be very great in the immediate future. Tentative agreements exist between Canada and the United States on private aircraft, and it will be some time before small planes can make transoceanic flights. For the United States, the most important decision is whether it shall permit several companies to compete for business in a given foreign market, or whether United States aviation shall limit its service to one specific, authorized carrier on any one route.

The CAB has in general followed the traditional theory of American business in declaring for competitive operations by air carriers. Actually, this declaration has been only theoretical since there was such a brief period of operation in the international field before the war. The question is most pressing now that resumption of peaceful flights must be expected and prepared for in advance of actual peace; and in the United States it is complicated by our policy of reciprocal flights.

For instance, although at present we have no reciprocal agreements with Mexico and the five Central American Republics, let us assume we have. Let us assume, also, that the authorized United States carrier schedules ten weekly flights through these countries, with stops in each. That could cost the United States a total of fifty flights entering *this* country. Now if more than one United States carrier does business in a given area—the same area to continue the hypothesis—the number of reciprocal flights will be doubled or tripled or quadrupled by whatever number of United States carriers are scheduling flights. Practically, of course, the situation would not be pushed to absurdity, because the total available business would not warrant it.

### UNITED AIR LINES DISSENTS

When in 1943 seventeen domestic air lines prepared to submit to the CAB a "Declaration of Policy on Worldwide Aviation,"

United Air Lines made a vain effort to insert in this Declaration the following provision:

> "If it should be found on further study that our country's interest could best be served by joint or cooperative operation, the airlines are willing to give consideration to such a plan."

In explaining United Air Lines' refusal to become a signatory to the Declaration, Mr. W. W. Patterson, its President, pointed out that under the philosophy of the Atlantic Charter, an equal distribution of flying schedules could be expected and that the forty-three airplanes which he estimated would be sufficient to serve a possible 1948 passenger demand in the North Atlantic would be distributed equally among seven foreign countries and the United States of America, thus giving each country six airplanes! Mr. Patterson's views on this complex problem are pertinent. Divorced from the context of his overall summary, here is what Mr. Patterson wrote in the letter addressed to the members of the Civil Aeronautics Board:

> "If more than one United States company is to participate in the United States share of the North Atlantic competition, no one United States company could be an outstanding success in view of such a narrow market without completely ruining its United States competitors, unless such competitors received a very heavy public subsidy to insure survival. Do we want to promote an international subsidy war imposing added tax load upon citizens already burdened by an unprecedented war debt? Such a promotion should not be countenanced under the American system of free enterprise."

### SIXTEEN AIR LINES TAKE A STAND

This decision of Mr. Patterson threw the entire question of monopoly versus competition into even sharper focus. The sixteen air lines (still called the Seventeen Airlines Policy Com-

mittee although United Air Lines desisted) have vigorously opposed the suggestion that American interests in world air lines be operated by one company. They asked that the domestic air lines be permitted to do in peacetime what they are doing in wartime, with modifications to conform to trade conditions. Instead of presenting a solid front to the rest of the world, American air-line interests have divided themselves sharply into two opposing camps with both forces foregathering for a major test of strength. The target of the controversy appears to be the McCarran Bill, designed to set up the "chosen instrument" for the operation of American international air business.

In opposing such a governmental regulated set-up, the domestic air lines, through their Committee, appear to stand squarely on the following viewpoints: (a) That monopoly in any form should be avoided since it would lead to government ownership, thus jeopardizing America's leadership in commercial air transportation and aircraft production; and (b) that the universally accepted principle of air sovereignty should be liberalized but not abandoned.

This group directs attention to the fact that Europe's adoption of monopoly practices has been brought about by economic and political conditions that do not exist in the United States and therefore "cannot validly be offered in support of an attempt to foist off monopoly on the American public." To prove this contention, they point out that the growth of authoritarianism throughout the world "has brought in its wake various forms of government monopoly which, in the main, were actuated by military and political motives, and proven to be utterly deficient from a commercial or economic standpoint."

The Seventeen Airlines contend that in competition with the government monopolies of Europe a privately owned American monopoly "could unwittingly become the tool of any foreign state or states that might find it desirable to involve the United States company in a concealed effort to gain advantages or dis-

criminate against some other foreign country or countries." They also contend that several independent American companies would involve this government in a greater degree of reciprocity than a single monopoly company. The proponents of regulated competition hold that a United States monopoly company would not only be subject to full reciprocity by all of the leading countries of Europe, but that the authorization of such a company by the Congress of the United States would have the effect of "arousing the fear of practically every country in the world."

The "Seventeen Airlines," it appears, are determined to prevent any policy from being adopted by the United States government until they have had an opportunity in public hearings to air their views. They are determined to put up a stiff fight with the aid of certain agencies of the Government to prevent any opposing legislation from being enacted by Congress.

So much for some of the arguments of the group opposing the "chosen instrument" policy. There are a great many others; some that are sound and reasonable, some that are wild and even vituperative.

The limited examination contained in this discussion of the question cannot concern itself with all the pros and cons developing in this heated debate. An observer on the sidelines can only judge from the known and published facts. To this observer it becomes clear that unlimited competition for routes by various United States-flag lines would tend very strongly toward weakening the ability of any United States aviation company to compete in the world's air with the two great national aggregations represented say, by the British Empire and the U.S.S.R.

### THE McCARRAN PROPOSAL

It was that realization which apparently led to the McCarran proposal of a billion-dollar American Civil Aviation corporation, with which to present a united bargaining agency. There may be real doubts as to whether such an enterprise should be under-

taken by Act of Congress, rather than as a purely commercial affair. The Russians are running their lines by government orders; the British say they are divesting their lines from government participation. The greatest practical success yet achieved in the air has been by a private American line. All these factors have to be weighed very carefully. But from the American point of view, it must be remembered that the oustanding success of the private American line was made when it faced no competition from within its own nation. Had there been a half-dozen American companies the story might not have been so favorable to us.

## DANGERS OF COMPETITION

There are other dangers in multiple United States services being authorized for any one area, as this writer sees them. They lie particularly in the temptation that would arise of plunging such United States competitors into the political arena of foreign countries in order to outwit each other—manipulating currencies, slandering the technical repute of rivals, etc. Instead of making aviation an instrument of peace and understanding between nations, it would increase the commercial irritations and wounded governmental vanities that lead to international friction—and war. As these unrestricted American operators are driven to set themselves up under foreign flags, they will soon be discovered operating in and out of the United States beyond the controls, the taxes, the wage standards and the safety required of the American-flag operators. In very large measure the responsibility for keeping the air peace will rest on the United States. Our plane production capacity exceeds by several times that of the rest of the world. We do not have to mention that fact, the world already knows it. But it is up to us to exercise a little self-control. In order to maintain our production, we have to have customers. Irritated neighbors are not good customers. That may be "dollar diplomacy," as it was once contemptuously termed, but it is good commercial sense nevertheless.

## INTERNATIONAL CONVERSATIONS

An international agreement on these regulations is already under consideration. Conversations have been held between Canada and the United States; Great Britain and the United States; and Russia and the United States. Sometime in the near future, these four nations, together with China, expect to draw up a permanent draft for presentation to the United Nations. This procedure was adopted because it was practical, and aviation is a practical matter. The governments of occupied European countries are not in a position to determine what will be the possibilities of their national aviation until reconstruction has been begun after liberation. The South American Republics have, as yet, not entered into the international field, except as between themselves and with the United States under conditions that were mutually agreed to at the Havana Conference of 1928. No violation of any existing agreements is expected to come from these conferences. On the contrary, they are to simplify and unify the regulations covering both national and international flying.

The conferees are well aware that simplicity and unity are essential when man moves at more than five hundred miles an hour. That is the speed of the air age.

## AIRCRAFT PRODUCTION

It is generally acknowledged that the only nations now capable of producing aircraft on a large scale, with the expected elimination of Germany, and with the resources and trained personnel to organize and operate the kind of systems required by aviation are the British Commonwealth, the United States, and the Soviet Union. Of these, the British have had the longest—and on the whole the most successful—experience in operating international commercial enterprises with a minimum of friction; the United States has achieved the largest and most convenient commercial air lines in international service; and Russia has a potential that need yield to neither one, although as yet Russian civil air service

has been almost entirely an arm of the Soviet Government for use in official business.

### OUR AIR POSITION

As has been shown, the United States has the weakest geographical bargaining position of any of the three. We need Canadian permission to use the short routes from our great centers to the great centers of both Europe and Asia; we need also the numerous landing rights mentioned, a very great number of which are located in British Dominions and colonies throughout the world. It is true that the British nations are our best customers. They need our products and materials; but we need their trade, and (with the possible exception of Canada) they have no geographical necessity for entering United States air, such as we have for using the British air. To a certain extent we are in the same position as regards Russia. As we have mentioned, the Soviets can do business by air with almost any nation, and without seeking leave from anyone other than the government of the intended customer.

In fact, our bargaining position with Moscow is even weaker than it is with London, since the Soviets have various alternative routes by which to cross the Western Hemisphere without using United States air. However, it may easily develop that these geographical handicaps are more than compensated by the undeniable fact that the United States has, overwhelmingly, the largest aeronautical industry, the greatest fleet of transport airplanes in the world and that, in both peace and war, we originate the vast majority of international traffic, whether on the sea or in the air.

### THE U.S.S.R.

On the organizational side, the Soviets have, of course, no competition within themselves. The Russian air transport system will be a unit of the Soviet Government both as to ownership and operation. Profits, if any, will go into the general treasury. Losses,

if any, will be covered by the general tax. The policy and purpose of Russian civil aviation will be determined by governmental officials, holding office under the government and answerable, not so much to a general public for satisfactory service on the air lines, as to the deciding group within the Kremlin which directs the political, economic, and military policy of Russia as a single unit.

### THE BRITISH COMMONWEALTH

The British Commonwealth is attempting, and may easily succeed, in organizing all the various potential aviation resources of the Dominions into a single unit. Proposals have been made that this should be governed by majority vote of representatives from all the members, and this appears to have been done at the London Imperial Conference. But whether the direction is democratic, as that would be, or is dominated by London, the fact would still be that the United States—dedicated to internal competition—would face two great and powerful foreign competitors, each of which had a unified policy.

### AVIATION, ECONOMICS, POLITICS

It is to be seen from all the foregoing that there are differences of opinion on every phase of the international air problem. There may be even greater differences when wartime unity and controls give way to "free enterprise," competition and trade rivalry. The differences may become bitter—as in fact they already are—and the battle for the world's air will be on! There are some who contend that "natural law" would prevail, and that we would eventually come out with the same kind of competition we always had—tough, ruthless and hard-bitten, with each nation taking all it could get—and then some. This unpleasant prospect, however, is countered by the more optimistic view that wisdom will prevail, and that a liberal outlook will go hand in hand with realistic ordinary common sense.

The aviation picture of the world will then be an accurate reflection of the political and economic likenesses of the various nations, and should continue to reflect political and economic world changes with increasing affinity until, in a surprisingly short time, the interests of all three—Aviation, Economics, Politics—will be found to have become identical and indivisible.

# AIR AGE SCRAPBOOK—1909

Houston Peterson

Some months ago I dug out of an old box two bulky scrapbooks which I began to keep in the summer of 1909, while I was still in grammar school. I was trying to preserve a record of all the flights being made in the world, with clippings from any newspapers, magazines and almanacs that I could put my eager hands on. The two books, totaling nearly three hundred pages, are not very tidy jobs. The pasting shows more concern for permanence than elegance, and the chronology is far from perfect. As I did not then have a scholar's concern for sources, one cannot be sure whether the articles came from the *Times*, *Express*, or *Examiner* in Los Angeles, or the *San Francisco Examiner* or the *Fresno Republican*. And there is no clue at all for some of the illustrations! Nevertheless, those faded pages, with their happy headlines and personal anecdotes, bring back, as nothing else can, the incredulous excitement with which we followed the progress of aviation just a short generation ago—less than six years after the Wright brothers made their first flights at Kitty Hawk on December 17, 1903.

Our sense of wonder has been stunned so many times since then that we are now apt to take for granted those pioneer glories or think of them as merely amusing. In the Disney film, *Victory Through Air Power*, the early planes are all quaint, awkward, funny—and the men in them equally so. Of course, this caricature heightens the contrast to the modern monsters of the air but the effect is unfortunate. We who watched those early planes with bated breath saw nothing funny in them; to us their move-

ments were graceful, magnificent, and their pilots were heroes of a new dispensation. They soared not on metal wings or plywood as strong as steel, but in contraptions of spruce and bamboo, covered with silk, linen or canvas, supported by piano wire, and powered by uncertain motors with cylinder heads which had a proclivity for blowing out while in flight. The threadbare phrase, "he took his life in his hands," applied to those men more literally perhaps than to any other group in history.

On the first day of July, 1909, the Wright brothers were at Fort Myer, near Washington, preparing their biplane for government tests. Orville "completed three successful flights," one of 5 minutes, one of nearly 8, and one of 9½. A speed of from 36 to 38 miles per hour was attained and a height of 40 feet!

Two weeks later a serious "rival of Wrights" appeared in the person of Glenn H. Curtiss who made a circular flight over the Hempstead Plains, Long Island, lasting 52 minutes and 40 seconds. This was the best American flight of the year thus far and only about 40 minutes short of the world's record. "I came down," said Mr. Curtiss, "because my gasoline supply was running low and the wind was getting rather uneven." A crowd of enthusiasts tried to carry him on their shoulders, "but rubbing the particles of dust from his eyes, he broke away smiling, and said that he wanted his breakfast."

But this was nothing compared with the news that came from the white cliffs of Dover on July 25. Bleriot had landed at dawn in his tiny monoplane after flying the 25 miles from Sangatte, near Calais, in 37 minutes. "To the handful of people who had gathered to see him off, the spectacle of this man, hobbling on crutches, dreaming of a flight to England, had something awe-inspiring, even terrifying in it." He had stolen a march on his brilliant rival, Hubert Latham, who was sleeping near-by, unaware that weather conditions had improved. On hearing the news, Latham wept and then sent a telegram: "I hope to follow you soon." He did follow a few days later—and plunged into the

channel for the second time. Meanwhile Bleriot explained to reporters that there was little danger in his profession as long as one kept cool. "In case of accident I throw myself on one of the wings. That breaks the wing but it saves me."

Many newspapers saw that Bleriot's flight began a new epoch in the world's history. It meant that Great Britain was no longer an impregnable fortress. It meant, according to one cable, that "the vast expenditures for the navies of the nations are foolish, that armies are to be things of the past, and that the battles of the future are to be battles in the air."

Before we had recovered from the tremendous shock of Bleriot's achievement, the Wrights were ready for the first of the two crucial tests imposed by the United States government—the so-called endurance test which required a machine to remain in the air for an hour with two persons. Not until after six in the evening did the high wind lessen. Then the 1,200-pound biplane, with Orville Wright at the controls and Lieutenant Frank P. Lahm in the extra seat, sprang from the starting rail and began to circle the great drill ground at a height of 60 feet. President Taft and the rest of the crowd watched tensely, as lap after lap was completed—50, 60, 70, 74 laps, or nearly 50 miles in one hour, 12 minutes and 40 seconds. Orville had beaten by a full three minutes the world's record for a flight with a passenger made by his brother Wilbur the year before in France. "I was nervous at first," said Orville. "You know this was my first attempt with a passenger since last year." On that occasion Lieutenant Selfridge was killed and he himself badly injured.

On the last day of this "greatest month of aerial navigation" (according to *Popular Mechanics* of the time) Orville Wright undertook the second government test—a ten-mile, cross-country flight with passenger.

> "He not only surpassed the speed requirements of his contract with the government but accomplished the most difficult and daring flight ever planned for a heavier-than-air machine.

Incidentally he broke all speed records over a measured course. His speed was more than forty-two miles an hour. He made the ten miles' flight in fourteen minutes and forty-two seconds. He went up nearly five hundred feet in his crossing of the valley of Four Mile Run, and his average altitude was about two hundred feet. President Taft arrived upon the parade ground at Fort Myer just in time to see the aeroplane land and to participate in the wild demonstration which welcomed the triumphant aviator."

Now the scene shifts to Rheims, France, where the first aviation meet began on August 19, 1909. On that day most of the aviators in the world, except the Wright brothers, were on hand tuning up their machines, and at sunset, "three heavier-than-air craft were maneuvering together for the first time in history. All were flying rapidly when suddenly Curtiss saw Dumanset in an Antoinette monoplane approaching at right angles and on the same level with him. Curtiss, realizing the danger, elevated his plane. His machine instantly shot upward and soared over the Frenchman. Spectators watched the maneuver with bated breath, but when they saw it was successfully and brilliantly carried out, they applauded the American wildly." (On August 22 nine machines were in the air at the same time.)

For several days the bird-men seemed to be only trying their wings and then—the record for distance was broken three times within seventy-two hours! First the daring Paulhan, in his Voisin biplane, covered about 83 miles in 2 hours and 53 minutes—20 minutes in a "heavy" rain and windstorm. Next Latham in his beautiful Antoinette monoplane flew 95 miles in the rapid time of 2 hours and 18 minutes—king for a day! Not Bleriot but young Henry Farman now challenged the hard-luck Latham. In a large box-like biplane of his own design young Farman rose to a height of 10 feet and then around and around the field he went for 3 hours and 14 minutes and a distance of 118 miles.

However the grand event of the meet was to be the race for the James Gordon Bennet trophy and a cash prize of $5,000—20

kilometers (12.42 miles) or two laps around the course. Bleriot and Latham were the favorites, with Curtiss in his trim little biplane an outside choice.

> "Curtiss stole a march on his rivals by getting away early. Finding the conditions favorable at ten o'clock in the morning, he decided to take no chances in the fickle weather and after a trial trip in which he made the circuit of the course in seven minutes fifty-five seconds, he started immediately on his attempt to win the cup. He handled his machine in masterly style. The first round, measuring 6.21 miles, was made in 7.57 2-5, and the second round was covered in 7.53 1-5, a world's record. This remarkable showing on the part of the American created consternation in the Bleriot camp."

Late in the afternoon Bleriot made a desperate attempt to surpass Curtiss' time but fell short 5 and 3-5 seconds. Third place was taken by Latham and fourth by Lefebvre. "Cockburn, an Englishman, ran into a haystack as he was maneuvering for the start, and did not cross the line."

After the many columns devoted to the Rheims meeting, we come across three short clippings about the young Brazilian living in France, Alberto Santos-Dumont. He was already well known for his small motor balloon. But now he casually makes a five mile flight across country at better than 55 miles an hour, in order to win a wager of $200. His little plane, with the wide single wing, and diminutive tail, weighed, together with the pilot, only 260 pounds. Here indeed were commercial possibilities and Santos-Dumont at once received numerous orders. But he was only interested in advancing the art of flying and offered to all comers free use of his inventions, unprotected by patents—a generosity rare even in aviation.

While the Rheims meet was going on, Wilbur Wright reached Berlin and began a series of impressive flights in the presence of German army observers. On September 17 he attained an altitude of 760 feet, far above Latham's record of 508 feet.

Back in New York, brother Orville assisting in the Hudson-

Fulton celebration, on the morning of September 29 ascended from Governor's Island and flew majestically around the Statue of Liberty. This was supposedly a direct challenge to Curtiss who had first suggested such a flight. "From now on, it is expected that the two aviators will strive to outdo each other, although neither will do anything reckless." But Curtiss did not cooperate.

Three days later it was Wilbur Wright in Berlin who seized the headlines again by reaching the unprecedented height of 1,600 feet. "I never flew so high before," said Wright.

> "Immediately after rising I set the rudder at the maximum and kept climbing steadily for fifteen minutes, until the field and adjacent country reminded me of the picture I had from Zeppelin's airship, only the grounds seemed smaller. The descent I made in five minutes. I came down at a speed simply terrific. The whole machine shook as it rushed through the air, but my sensations were just the same as in lower altitudes. The air was not colder and the wind resistance was no greater."

Once more it is Orville's turn in New York. On the morning of October 5 all America read some such headlines as these: WRIGHT MAKES SPECTACULAR FLIGHT OVER BATTLESHIPS, MANHATTAN SUSPENDS BUSINESS TO SEE AEROPLANE SLIP BOLDLY OUT FROM GOVERNOR'S ISLAND AND UP THE HUDSON TO GRANT'S TOMB, RETURNING SAFELY. He was apparently planning to fly at two hundred feet but

> "unexpected air currents caused by the great buildings moved the aviator to bring his craft closer to the water. Tilting the elevator rudder, he slowly brought the machine down, slipping gradually until he was only one hundred feet above the tooting ferry boats and the busy river traffic. The motor was churning as regularly as a clock, and settling himself in his seat, Wright sped onward up the river. Over the warships of five great powers he passed, his progress marked by cheers from the sailors of his own country and those of Great Britain, Germany,

France and Italy. The bluejackets lined the rails of their ships and gazed in wonder at the little craft above them."

Wright intended to make a second flight over the buildings on Manhattan's waterfront and then across to New Jersey, but much to his chagrin, a cylinder head blew out, and ripped a large hole in the canvas of the upper wing. Before leaving for Washington the following day to continue the instruction of Army officers, he announced that he and his brother would make no more exhibition flights.

"The flight of yesterday," he said, "was more than an exhibition. It was more like the taking up of a challenge or the making of a record to stand as a milestone in the history of aerial navigation. My brother and I regard our experiments as being in the same class with Fulton's experiments. We are working with an art that is still in its infancy. So I wanted to take part in this celebration.

"The accident yesterday taught me a lesson—that until motors are perfect, we shall have no perfect aeroplanes. The science of flying now depends upon the motor. My aeroplane seems perfect but the motors are not. I hope that day will come when we shall have a perfect motor."

Naval authorities took the flight over the battleships nonchalantly. Commander Sims of the Minnesota shrewdly pointed out that "an aviator out of gun range would be equally out of position to drop a projectile on a battleship." Edward Seymour of the British fleet was of the opinion that "in warfare the aeroplane will be limited to scouting. Of course it could carry explosives and drop them on a ship but I think its use for that purpose is impracticable." But the remarks of Sir William Henry White, formerly chief constructor for the British Navy, were the most consoling: "The nations of the earth are not disturbed over the likelihood of the aeroplane's possible use in war."

## ABOUT THE AUTHORS

BURNET HERSHEY spent twenty-seven of his forty-seven years as a foreign correspondent for American newspapers and magazines. In World War I he was with the American, French, and Belgian armies on the Western Front. In this war he was accredited by the War Department to the European Theatre of Operations (1942). Early in 1943, he visited American air bases in Britain, Africa, South America and the Carribean and then published his book: *The Air Future—A Primer of Aeropolitics*, a full discussion of the international aviation problem. Mr. Hershey covered the Paris Peace Conference and twenty-two subsequent international conferences throughout Europe and the Far East. He has been a lively observer of the international scene, has written a number of books and hundreds of articles on world affairs, and is known to many as a radio commentator and news analyst. He was one of the founders and a President of the Overseas Press Club and is at present Director of the Free World Economic Bureau.

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